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PUBLIC UTILITY RATE BASE—PAST, PRESENT OR FUTURE VALUE?

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I

AUTHORITATIVE historians have referred to John A. Bingham as "a shrewd member of the House of Representatives, ... a prominent Republican and a successful railroad lawyer from Ohio familiar with the possibilities of jurisprudence."[2] One may well ponder the attribute, "familiar with the possibilities of jurisprudence." Applied to Bingham, it constitutes a masterpiece of understatement, for Bingham was none other than the man who drafted the due process clause of the Fourteenth Amendment and who, as a member of the congressional committee which framed the amendment, brought about the inclusion of that fateful provision.

It is a pity that we cannot confront Bingham with the myriad judicial spawn of his pen child. That he would approve most of them as wholesome instruments for the restraint of legislative and administrative impulsiveness is a fair guess. That he would recognize many of them as necessary interpretations of the mystic

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[2] C. A. and M. R. Beard, *The Rise of American Civilization* (New York, 1927), II, 112.

words, "nor shall any State deprive any person of life, liberty, or property without due process of law," is more doubtful. One would particularly relish an opportunity to acquaint the "successful railroad lawyer" with the proposition, applied in the first instance to railroads, that a public utility company is entitled to charge prices that will produce a fair return upon the value of its property used and useful in the public service. For the last forty years this proposition has been an established corollary of the due process clause. The United States Supreme Court pronounced[3] and has repeatedly confirmed it.[4] Therefore, the Supreme Court's explanation of the meaning of "value," as that term is used in the enunciated principle, would appear authoritative. The Court maintains that "the value of the property is to be determined as of the time when the inquiry is made regarding the rates"[5]—in other words, that "value" means *present* value. But, in spite of obsequious administrative and judicial repetition of this interpretation, in spite of the verbal apotheosis of present value as the officially sanctioned rate base, the fact remains that in the last analysis neither the commissions nor the courts are interested primarily in present value. What they really seek, and what in all justice they ought to seek, is not present but *future* value.

The propriety of a future-value rate base becomes apparent when one considers the purpose of rate regulation. Why does government fix rates in a few industries (the public utilities) and not in other industries? For an answer one must seek a characteristic at once peculiar to public service industries and indicative of the desirability of government regulation. By observation and analysis of the industries themselves, or at second hand through the maze of official and academic literature on the subject, one can trace, without great effort, the distinguishing, basic public

[3] *Smyth* v. *Ames*, 169 U.S. 466 (1898).

[4] See, e.g., the Supreme Court cases cited in the following notes.

Recently two justices of the Court refused to accept a majority opinion which "appears to give new vitality needlessly to the mischievous formula for fixing utility rates in *Smyth* v. *Ames*" (*Driscoll* v. *Edison Light & Power Co.*, 59 Sup. Ct. 715, 724 [1939]).

[5] *Willcox* v. *Consolidated Gas Co.*, 212 U.S. 19, 52 (1909).

utility characteristic, which may better be described as a combination of two characteristics. Briefly, public utilities constitute a unique group of industries in that, almost without exception, they produce necessary services under naturally monopolistic conditions. Other industries generally lack one or both of these characteristics. If they do not produce something of vital significance to the public, relatively little harm is done by excessive prices. Again, even if an industry produces a necessary service or commodity, rates need not be forced down by government action unless there is a monopoly; for in the absence of monopoly it is thought that prices are kept reasonably low by the almost automatic effects of competition. But if an industry is monopolistic, excessive prices can, presumably, be charged; and if, in addition, the product is a necessity, as in the case of the services furnished by public utilities, excessive prices will be extremely burdensome to the consumer. Competition constitutes a form of natural regulation. From it flow advantages relating not only to price but also to quality and availability of service. Apparently, then, competition ought to be artificially introduced into the public service field in order to provide the public with these advantages. But such a course would be ill advised, because public utilities are natural monopolies: they operate much more economically on a monopolistic than on a competitive basis. Hence, it is considered desirable to obtain in these industries the advantages of competition without destroying their monopolistic status. In other words, something must be substituted for competition—and that something is regulation by the government. Whether the government in question is state or federal, its basic function in utility regulation is to bring about the salutary effects of competition in industries which, by their very nature, discourage competition.

We have contrasted "reasonably low" with "excessive" rates. These phrases suggest the judicial and quasi-judicial cant with which students of public utility regulation are all too familiar. "Just" rates, "confiscatory" rates, "reasonable" rates—the vague concepts implied by these terms bewilder and irritate the inquirer whose point of view is primarily economic rather than ethical or legal. For to the economist, rates (prices) determined

in a competitive market may or may not advance justice and reasonableness, but they *do*, in any event, tend to effect that amount of production and consumption which will result in the greatest satisfaction of the demand for the product consistent with the earning of revenues sufficient to cover the cost of production. In other words, under competitive conditions, producers will tend to receive from consumers that *quid pro quo* which, while not falling below the "quo" (i.e., below the cost of production), will result in as large an amount of consumption as possible. If prices fall below cost of production, productive resources will in time withdraw, so far as possible, into other fields, and the consequent decrease in supply will cause the prices to rise. If prices are so high that the public fails to consume the greatest amount of the good consistent with a balance of price and cost, additional resources will flow into the industry and prices will go down.[6] The public service commissions' unending efforts to encourage consumption by fixing public service prices at the lowest level at which they may be expected to cover the cost of production—consisting of operating expenses, taxes, and a reasonable return to the investor—without any (additional) profit, represent, therefore, an attempt to realize the competitively determined price ideal. One is justified in concluding that the purpose of rate regulation is to fix rates or prices that will have economic effects similar to those of prices in competitive industries.

Of course, there is no novelty in that conclusion. On the contrary, it represents, beyond controversy, the orthodox point of view. Charles Francis Adams, Jr., probably the most enlightened of the early public service commissioners, maintained that "government regulation is a practical substitute for competition."[7] Nelson Lee Smith, who subsequently became chairman of the New Hampshire Public Service Commission and president of the National Association of Railroad and Utilities Commissioners, based his well-known study of rate of return on "the assumption that the primary objective of regulation is a simulation of the re-

[6] The writer is, of course, aware that generalizations based on the hypothesis of perfect competition may be imperfect in their application to actual situations.

[7] *Railroads: Their Origin and Problems* (rev. ed.; New York, 1886), p. 131.

sults of full and free competition."[8] The Federal Trade Commission, in its formidable "72-A," stated that regulation of operating electric and gas companies is "a means of preserving to the public served, so far as possible, desirable economic results that competition might produce."[9] There is no dearth of additional statements by responsible persons to the same effect.[10] Thus, the competitive theory of regulation is established both by commission practice and by authority. One may with confidence proceed to use it as a fundamental assumption in the development of a critique of the rate-base problem.

II

In a competitive capitalistic economy—the model for the regulated economy of the public utilities—the price of consumer goods, to the extent that it is determined by supply, depends in part upon the current price or value of production plant. Existing enterprises, whatever the original cost of their property, must reckon with the new competitor, actual or threatened, who invests at the current cost of land and equipment. His prices must be met, and those prices will be influenced by his production costs,[11] which include a return (satisfactory in the light of alternative opportunities) based upon his investment at current plant prices. Other things being equal, the necessity to meet this competition will be particularly significant if such plant prices are lower than those incurred by the pre-existing enterprises that are faced with that necessity. If, on the other hand, a rise in the general price

[8] *The Fair Rate of Return in Public Utility Regulation* (Boston, 1932), p. 11.

[9] *Summary Report of the Federal Trade Commission on Economic, Financial, and Corporate Phases of Holding and Operating Companies of Electric and Gas Utilities* (70th Cong., 1st sess., Senate Doc. 92, Part 72-A [1935]), p. 57.

[10] See *State Utilities Commission* v. *Springfield Gas Co.*, 291 Ill. 209, 218 (1920); H. G. Brown, "Railroad Valuation and Rate Regulation," *Journal of Political Economy*, XXXIII (October, 1925), 512; H. B. Dorau, *Materials for the Study of Public Utility Economics* (1930), p. 325; J. E. Kirshman, "The Principle of Competitive Cost in Public Utility Regulation," *Yale Law Journal*, XXXV (May, 1926), 805; D. R. Richberg, "A Permanent Basis for Rate Regulation," *Yale Law Journal*, XXXI (January, 1922), 267.

[11] Cf. P. H. Wicksteed, *The Common Sense of Political Economy* (rev. ed., 1933), I, 391.

level has brought with it an increase in plant prices, capitalists who invested at lower prices will tend to demand a satisfactory return based on such advanced prices and, if unable to get it, will shift their investment, so far as possible, to industries in which earnings reflect the rise in price level. As a federal court has stated, "a general rise in prices, ... affecting all alike, at least after a time, enables each to raise his price, not only because of his costs in labor and in materials, but to obtain a proportionate increase in his profit, based upon the increased value of his plant and machinery."[12] New capital, too, will tend to demand such a return and, if unable to get it, will likewise turn to alternative investment opportunities. These considerations point to the primary importance of current plant value in the determination of competitive prices.[13] It may be urged, therefore, that such value[14] provides a reasonably close approximation to a theoretically accurate rate base.

Oddly enough, some writers who accept the competitive ideal in regulation nevertheless defend an original-cost or prudent-investment rate base.[15] The inconsistency of that position becomes apparent upon consideration of a hypothetical manufacturer who sells his product in free competition with a large number of other manufacturers in a field that is open to additional competitors. His investment, made in 1927, was $100,000, and his property is now worth $50,000. Had he bought the property in 1929, it would have cost him $120,000. To maintain that an original-cost

[12] *Consolidated Gas Co.* v. *Newton*, 267 Fed. 231, 237 (1920); modified and affirmed, 258 U.S. 165 (1922).

"In a competitive industry, higher present cost of construction would discourage competition, limit the supply of the article or articles produced, raise prices, and enable those who had constructed their plants when the necessary materials were cheap to make more money" (Brown, *op. cit.*, pp. 512–13). See also H. D. Henderson, *Supply and Demand* (1922), pp. 61–62; W. L. Ransom, "Some Aspects of the Valuation of Private Property for Public Uses," *Journal of Land and Public Utility Economics*, II (January, 1926), 9.

[13] Cf. R. L. Hale, "The 'Physical Value' Fallacy in Rate Cases," *Yale Law Journal*, XXX (May, 1921), 715.

[14] Together, of course, with the value of utility property other than plant.

[15] E.g., J. E. Kirshman, "The Principle of Competitive Cost in Public Utility Regulation," *Yale Law Journal*, XXXV (May, 1926), 805.

or prudent-investment rate base is consistent with the competitive-price ideal, one must affirm that the prices that the manufacturer can now obtain for his product would be higher if he had gone into business in 1929 instead of 1927.

So far, our argument seems to support a present-value rate base. And this would be the case if rates were or could be continually adjusted to the ever changing present, on the basis of a property valuation continually adjusted to the supposed investment of a new competitor, i.e., to the present cost of plant. In practice, of course, no such adjustment is possible. Rates established by a commission remain in effect from the date fixed in the commission's order until the effective date of superseding rates approved by the commission. Ordinarily, therefore, they will be in effect for a period ranging from a few months to a few years. The salutary effects of competition are to be achieved, and the hypothetical competition to be met by the utility company will exist, as of that future period. It requires no taste for paradox to recognize the fact that the significant "present," for purposes of rate regulation, is the time when or during which the prescribed rates are effective; but the time indicated is subsequent to the date of the commission's action and is, therefore, with respect to that action, the *future*. We may summarize this argument by pointing out that, as rates are fixed not for the present but for the future, value for rate-making purposes should be determined not as of the present but as of the future.

To be sure, one cannot avoid a certain degree of vagueness regarding the extent of the future period. Use of the phrase "immediate future" hardly qualifies as a solution of the problem, although it directs attention to the inadvisability of trying to be too farsighted. Perhaps the most serviceable definition of the future period is the period that will be likely to elapse before the commission, after adequate hearings and investigation and without undue expense, will be able to approve or to prescribe schedules at a new rate level.

Further, it may be asked whether value should be determined as of any particular date in the appropriate future period or whether rate base ought to be identified with average value dur-

ing such period. For purposes of further discussion, the writer will assume the latter alternative, which, in the absence of a theoretically ideal, daily adjusted rate base, at least has the advantage of balancing divergencies.

III

To discover that persons in authority have erred is always peculiarly gratifying. In the present matter the courts and commissions, in the face of the demonstrable propriety of a future-value rate base, have repeatedly affirmed the present-value standard. Unfortunately, we must deny ourselves much of the gratification that would seem to be justified by their apparent failure to see the light; because in truth, and despite the ritualistic lip service paid to present value, there has been very definite judicial and administrative recognition of the future-value principle.

In this connection the circumstances attending the ascendancy of cost of reproduction in rate cases are significant. For it was during a price-level plateau, the 1920's, that the Supreme Court enshrined reproduction cost as predominant evidence of value. When, in 1898, the Court established fair value as the rate base, it mentioned a number of matters to be considered in the determination of such value. It refused to state how much weight ought to be given to each matter, and in its subsequent decisions it has adhered to the proposition that the ascertainment of value "is not a matter of formulas."[16] But during the above-mentioned period of stable prices the Court in effect required cost of reproduction to be given primary and paramount consideration.[17] Why? It is submitted that the Court, with its admirable but sometimes inarticulate good sense, understood that during such a period present cost of reproduction is much better evidence of future value than during a period of rapidly changing price level. When it is clear that tomorrow's prices are likely to be very different from today's, "spot" cost of reproduction cannot be accepted

[16] *The Minnesota Rate Cases*, 230 U.S. 352, 434 (1913).

[17] See esp. *McCardle* v. *Indianapolis Water Co.*, 272 U.S. 400 (1926). When it became obvious that the plateau period had terminated, the Court tended not to require that great weight be given to reproduction cost (see *Los Angeles Gas & Electric Corporation* v. *Railroad Commission of California*, 289 U.S. 287 [1933]).

as substantially identical with future value. But present cost of reproduction and a reasonable estimate of future value *will* be substantially identical when the level of today's prices approximates the probable level of tomorrow's prices.[18] Therefore the great emphasis put on cost of reproduction in a period of relatively stable price level strongly suggests that the emphasizers were thinking in terms of future value.

But we need not rely on implication. Express judicial recognition has been given to the fact that, as one court puts it, value "often must be determined by prophecy as to probable change of conditions."[19] Particularly significant is the following statement made by the Supreme Court in 1926:

> . . . . In determining present value, consideration must be given to prices and wages prevailing at the time of the investigation; and . . . . there must be an honest and intelligent forecast as to probable price and wage levels during a reasonable period in the immediate future. In every confiscation case, the future as well as the present must be regarded. It must be determined whether the rates complained of are yielding and will yield . . . . a reasonable rate of return on *the value of the property at the time of the investigation and for a reasonable time in the immediate future.*[20]

By this passage, it appears that a commission must consider both present value and future value. There is no inconsistency here, for the present is simply one limit of the immediate future. If "a reasonable time in the immediate future" is found to be one year, such time or period begins today and ends one year hence.

[18] See the quotation from the McCardle case in n. 20 below.

[19] *People ex rel. Consolidated Water Co. of Utica* v. *Maltbie,* 275 N.Y. 357, 365 (1937); appeal dismissed, 303 U.S. 158 (1938).

[20] *McCardle* v. *Indianapolis Water Co.,* 272 U.S. 400, 408–9 (1926). (Italics mine.) Cf. the following statement by the Wisconsin Supreme Court: "The basic result to be reached is the present and near future fair value of the property" (*Waukesha Gas & Electric Co.* v. *Railroad Commission of Wis.,* 191 Wis. 565, 569 [1927]).

In the McCardle case the court also indicated the effect of a price-level plateau on the importance of reproduction cost in the determination of rate base, stating: "If the tendency or trend of prices is not definitely upward or downward and it does not appear probable that there will be a substantial change of prices, then the present value of lands plus the present cost of constructing the plant, less depreciation, if any, is a fair measure of the value of the physical elements of the property. The validity of the rates in question depends on property value January 1, 1924 [the effective date of the rates in question], and for a reasonable time following" (p. 411).

Thus today, the present, is important as the starting-point of the immediate future, and a consideration of present value becomes relevant to the determination of future value. Express adoption of the future-value standard, then, would not mean rejection of present value in the establishment of the rate base. Present value would continue to be of great importance, but only because it is necessary to ascertain present value in order to determine probable future value.

IV

We have tried to indicate the theoretical soundness of a future-value rate base. But how about its practical soundness? The chief argument made in favor of the prudent-investment theory as against the orthodox present-value rule—the superior administrability of the prudent-investment theory—could be made with even greater force against the future-value standard; for the ascertainment of future value requires prophecy. The appraiser must predict tomorrow's prices. To this argument, the advocate of future value might reply that a wrong theory is not made right by the ease with which it can be applied. In view of the fact that utility regulation is regarded as a partial cure for the body politic, one may be justified in turning to a medical analogy and in pointing out that, if the patient suffers from a brain tumor, the conscientious physician will not remove his appendix on the ground that an appendectomy is a relatively simple operation. Perhaps the ultimate issue is between the economic function of the regulatory process and the convenience of the public administrator.

Forecasting is, of course, an integral part of rate regulation.[21]

[21] In a recent decision the U.S. Supreme Court stated: "What would happen in the future was necessarily a matter of prophecy. The Commission's rate had not been put into effect and in estimating what would be the consequence of the requirement the court was entitled to a reasonable basis for prediction" (*United Gas Public Service Co.* v. *Texas*, 303 U.S. 123, 145 [1938]).

Prophecy plays an important part also in other subjects of regulation, especially in the granting of certificates for the construction or abandonment of plant. Note the express reference to future convenience and necessity in the provisions of the Interstate Commerce Act relating to such certificates (Part I, sec. 1 [18], and Part II, sec. 207[a]) and in cases decided thereunder (e.g., *Long Island Railroad Co. Abandonment*, 228 I.C.C. 779, 782 [1938]; *Greene Construction*, 228 I.C.C. 790, 794 [1938]; *Bartel Common Carrier Application*, 7 I.C.C. Motor Carrier Cases 755, 758 [1938]).

When a commission contemplates prescription of a particular rate schedule, it must forecast the future consumption under such schedule and the revenues that the rates will yield. It must forecast the operating expenses that will be necessary for the production of the amount of the service that will be demanded. As the New York Public Service Commission states, "any factors which will affect operations in the future must . . . . be considered."[22] Even in determining fair rate of return, the commission that is thoroughly aware of its function will make and utilize a forecast of the fair rate of return for the immediate future; thus we find the California Railroad Commission saying that "for the reasonable period in the future over which the present decision will extend a return of 8 per cent will be proper and ample."[23] Valuation is no exception; it, too, must relate to the future period in which the prescribed rates are to be effective.[24]

The courts, fully aware of both the uncertainty and the indispensability of prophecy, have decided that mistakes due to reasonable but erroneous prophecy are not necessarily fatal to a rate determination. Thus, in affirming a decree in which a lower court had refused to enjoin enforcement of a rate order, the Supreme Court said: "If there was error, it was error in prophecy or error of judgment in passing upon the evidence."[25] To the same effect is the following recent statement by the New York Court of Appeals:

> The determination [of rates] *must* be based upon prediction and is not invalid if it is based upon prediction which is reasonable. Otherwise rates could never be fixed in advance. In reviewing the determination the court can ordinarily consider only whether the Commission acted reasonably and in accordance with the evidence available at that time.[26]

[22] *Re Brooklyn Borough Gas Co.*, 21 P.U.R. (N.S.) 353, 441.

[23] *Re Midway Gas Co.*, P.U.R. 1927C, 545, 558 (1926). See also *Re Ely Light & Power Co.*, P.U.R. 1929A, 55, 59 (Nevada Public Service Commission, 1928).

[24] ". . . . We are not unmindful that in determining the rate base of this particular utility that [*sic*] we must make an honest and intelligent forecast as to probable price and wage levels during a reasonable period in the immediate future" (*Re Horning*, 24 P.U.R. [N.S.] 462, 471 [Montana Public Service Commission, 1938]).

[25] *Georgia Railway & Power Co.* v. *Georgia Railroad Commission*, 262 U.S. 625, 634 (1923).

[26] *People ex rel. Consolidated Water Co. of Utica* v. *Maltbie*, 275 N.Y. 357, 368 (1937); appeal dismissed, 303 U.S. 158 (1938).

Yet the uncertainty of prophecy presents a real problem. As one commission rather plaintively remarks, "Anticipating the future is a difficult and often hopeless task."[27] The truth is that commissions do all they can to avoid this uncertainty by leaning heavily on the present and even on the immediate past as the best available evidence of the immediate future.[28] Operating expenses for the past year, present cost of capital—these furnish some clue as to future reasonable operating expenses and future fair rate of return. Likewise, in determining the rate base, commissions find it necessary to depend upon present value as the only value which is at once ascertainable (more or less) and definitely related to future value.

The Supreme Court has indicated quite clearly that the present must be considered in the determination of rate base only because of its relation to the future. In 1923 the Court stated:

. . . . An honest and intelligent forecast of probable future values made upon a view of all the relevant circumstances, is essential. If the highly important element of present costs is wholly disregarded such a forecast becomes impossible. Estimates for to-morrow cannot ignore prices of to-day.[29]

And ten years later:

. . . . The determination of present value is not an end in itself. Its purpose is to afford ground for prediction as to the future.[30]

[27] *Re Brooklyn Borough Gas Co.*, 21 P.U.R. (N.S.) 353, 441 (New York Public Service Commission, 1937).

As early as 1874 both the necessity for prophecy in the fixing of rates "by relation to cost and profit on capital" and the difficulty of such prophecy were recognized by a Senate committee which urged rejection of a proposal that transportation rates be fixed by that method. The committee stated: "In order to adjust charges to profits by a general rule of law, we must know what the actual profits are now, and what they will be in the future. This requires a knowledge of . . . the amount of business it [each railroad] now does, and what it will continue to do; the economy or extravagance with which it will be managed; . . . . how long its iron, ties, and rolling-stock will last, and what it will cost to replace them; the storms of winter and the floods of summer it will probably encounter; and finally, the losses which will result from accidents of all kinds" (*Report of the Select Committee on Transportation-Routes to the Seaboard* [43d Cong., 1st sess., Senate Report 307], Part I, p. 130).

[28] This practice has the approval of the courts (see *United Gas Public Service Co.* v. *Texas*, 303 U.S. 123, 145–46 [1938]).

[29] *State ex rel. Southwestern Bell Telephone Co.* v. *Public Service Commission of Mo.*, 262 U.S. 276, 288 (1923).

[30] *Los Angeles Gas & Electric Corporation* v. *Railroad Commission of California*, 289 U.S. 287, 311 (1933).

In the light of these pronouncements, one can accept and intelligently apply the present-value standard only if its real purpose—the ascertainment, so far as possible, of future value—is recognized. Certainly adoption of a past-value rate base, whether original cost or prudent investment, would be inconsistent with that purpose. When one considers the strength of the current crusade for such a rate base, one may well conclude that the chief significance of any critique of rate regulation lies in the light that it throws on the implications of the past-value theory.

V

Voices clamoring for an original-cost or prudent-investment rate base are blending in a mighty crescendo. The new systems of accounts[31] and the known or suspected views of some recent appointees to high office add to the peril of the revered *Smyth* v. *Ames* rule. Academicians, "liberal" lawyers and judges, and some of the public service commissions have trained their heaviest artillery on the old citadel. The walls are trembling. They may fall.[32] But, if they do, there will be another fall—the fall of the fundamental theory and justification of rate regulation, according to which such regulation functions as a substitute for competition in a naturally monopolistic industry. For the present-value rule, seen in its true light as the closest administrable approximation of the future-value principle, is merely a corollary of that fundamental theory. And that theory, in turn, flows from faith in competitive enterprise. Such faith has in recent years been severely shaken. Yet our current interest in the enforcement of anti-monopoly legislation suggests that competition still supplies the ideological background of our approach to economic problems. Let us, at all events, recognize the past-value rate base for what it is, an abandonment of the competitive ideal in the field of public utility regulation and therefore an invitation to utility revenues,

[31] In the brief submitted to the Supreme Court by the United States as *amicus curiae* in a recent case (*Driscoll* v. *Edison Light & Power Co.*, 59 Sup. Ct. 715 [1939]), appears the following statement: "Original cost, under present accounting requirements, is readily ascertainable, and is a proper rate base" (p. 9).

[32] ". . . . An early decision upholding rates determined solely on a prudent investment basis is not beyond the realm of possible expectancy" (Note, *Harvard Law Review*, LI [March, 1938], 893).

service, and financial development all maladjusted to an essentially competitive economy. It should be borne in mind that increase or decrease in utility revenues, if such increase or decrease results from rates fixed without regard to the principles of competitive enterprise, affects earnings in other industries in a manner inconsistent with those principles. Such interference with the balance at which competition aims must result also in insufficient or excessive (measured by the competitive ideal) investment in other industries. Utility companies do not operate in an economic vacuum.

Of course, as things stand, our economic system is far from being freely competitive. The ultimate question is one of desirable direction or tendency. If regulatory and judicial authorities wish to take a step in a direction away from the competitive equilibrium, they might do well to adopt a past-value rate base. To be sure, the inquiring mind will ask toward what type of economy such a rate base would tend to lead us. But that is another question.

SUPERMARKET AND CHAIN-STORE FOOD PRICES

CHARLES F. PHILLIPS[1]

THE development of large food stores operating to a considerable degree on a self-service basis has raised many questions which, partly because of a paucity of factual information, cannot be answered satisfactorily. Does this large store, commonly referred to as a supermarket, offer a method of operation by which the independent merchant can meet chain-price competition? Or is the supermarket, as is the smaller food store, more efficient if operated as part of a chain? Will the old-line grocery chains become the supermarket operators or will the field be dominated by new chains formed to operate just this type of store? Will the supermarket development continue to force the old-line chains to close their smaller units?

As already suggested, answers to the foregoing questions wait upon the accumulation of a body of factual information. We need to know a great deal more about the operating cost of the supermarket under various conditions—chain versus independent operation, downtown versus neighborhood locations, and small versus medium versus large city locations. Except for limited observations of general trends, we know little as to supermarket prices and pricing policies. Moreover, we do not know definitely what influence the supermarket prices have had upon prices in the units of the old-line chain companies. We are ignorant also as to just how successfully self-service operation, which is used by most supermarkets at least in their grocery departments, is going to appeal to persons of various geographic sections and of various income classes.

It is the aim of this article to report a study of supermarket and chain-store food prices as a beginning in providing some of the factual information needed in this field. This information will allow us to draw some tentative conclusions as to future trends.

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KINDS OF STORES COVERED BY THE SURVEY

Late in May and early in June, 1939, the writer personally visited and collected prices from practically all the independent supermarkets and a sample of each of the various kinds of chain food stores in both Syracuse and Utica, New York. Syracuse is a city of about 210,000. At the time of the survey it contained five independent supermarkets, that is, individually owned[2] large food stores operating at least the grocery department on a self-service basis.[3] Four of these were visited and retail prices obtained on a list of eighty-four items. In addition to these strictly independent stores, there was one supermarket organization operating two stores and another operating four stores, two of which were in Syracuse. Prices were obtained from one unit of each of these organizations. Because they operated so few units, they have been treated in the tables as independent supermarkets.

The importance of the price data gathered on independent supermarkets in Syracuse is increased by the fact that many of them have been in existence for a number of years, one of them dating from late in 1932 and others existing since 1933. This means that the prices they are now quoting are not those of new stores which might be quoting especially low prices in order to get established. Except for the more recent activity of the old-line chains, the food situation in Syracuse represents a considerable degree of maturity—although in not so great a degree as in the Los Angeles area, where there were twenty-five supermarkets as early as 1929.[4] It is also worth mentioning that none of these independent supermarkets contained nonfood departments.

In Syracuse were found also units of a number of old-line food

[2] In some of the stores certain departments, usually either meat or fruits and vegetables, were leased to other individual operators.

[3] No attempt was made to define a supermarket on the basis of floor space or sales volume. The only criteria were: (1) is it a large complete food store on a departmental basis and (2) are groceries sold on a self-service basis? As the writer's idea of a "large food store" may differ from that of other investigators, there may be some difference of opinion as to the number of supermarkets in the city.

[4] C. F. Phillips, "The Supermarket," *Harvard Business Review*, XVI, No. 2 (1938), 193.

chains, the four most important operators being the Great Atlantic and Pacific Tea Company, American Stores, Mohican Company, and Community Stores Company. These companies operated several types of food stores.

The A. and P. (a national chain with about twelve thousand units) was operating four types of stores—seven large supermarkets, two smaller self-service combination grocery and meat stores, an undisclosed number of service[5] combination units, and a number of straight grocery stores. As will be discussed below, the general price level for each of these types of stores was found to be different. American Stores (a sectional chain with something less than twenty-five hundred units) operated four large supermarkets and four smaller self-service combination stores. Contrary to the A. and P. policy, the price level was identical in both of these types of stores. The company also operated about five combination service and five straight grocery stores. These two types of stores also had an identical price level, which was higher than that in the self-service stores. The Mohican Company (a sectional chain which does not disclose the number of its units) operated at least two large units, both of which were large enough to qualify as supermarkets but which are placed in the combination-store classification as they were not on a self-service basis. Community Stores (mainly a local chain but with some units in near-by cities) had about twenty-two stores in Syracuse. Six of these were large supermarkets operating under the name of Par, while sixteen were smaller service grocery or combination stores.[6] With the two exceptions of the A. and P. service combination stores and the Community grocery store, prices were gathered in a representative sample of each of the various kinds of stores operated by each of these four old-line chain firms.

The five kinds of stores from which prices were obtaiend in Syracuse may be summarized as follows:

[5] Throughout this article the word "service" refers to clerk service. It is used to distinguish this type of operation from self-service operation.

[6] The numbers of stores cited in this paragraph were obtained by interviewing store managers, supervisors, and, in one instance, a leading executive. They are probably close approximations.

1. Independent supermarkets
2. Old-line chain supermarkets
3. Old-line chain self-service combination stores
4. Old-line chain service combination stores
5. Old-line chain straight grocery stores

Utica, New York, is a city of slightly over 100,000 people. In it the writer found but two strictly independent supermarkets. Prices were obtained in both of these stores. In addition, a Central Market supermarket was found, this unit belonging to a chain of from ten to twelve units which operates just supermarkets. We may refer to this type of organization as a supermarket chain in contrast to the supermarkets of the old-line chain companies. Utica also contained a large Par Supermarket which may be put in the supermarket-chain classification.[7]

Three old-line food chains were found to operate stores in Utica and, as in Syracuse, these were of various types. The A. and P. had two large supermarkets, two or three combination service stores, and about twelve straight grocery stores. American Stores had one large supermarket and five combination service stores (some of these seemed to be half-service and half-self-service stores). The Mohican Company operated at least one large combination store. As in Syracuse, prices were gathered in a sample of each kind of store for each chain.

The types of operation for which prices were gathered in Utica may be summarized as follows:

1. Independent supermarkets
2. Old-line chain supermarkets
3. Supermarket chain units
4. Old-line chain service combination stores
5. Old-line chain service straight grocery stores

ITEMS INCLUDED AND WEIGHTING USED

In the present study prices were gathered on the eighty-four items used by the Bureau of Labor Statistics in forming its index

[7] In Syracuse the Par stores were classified as operated by an old-line chain. Although these stores belong to an organization which does the bulk of its business in supermarkets, it did not seem advisable to set up a supermarket-chain classification for Syracuse on the basis of this one organization.

of retail prices. These items fall into eight commodity groups as follows:

1. Cereals and bakery products
   Corn flakes, corn meal, white flour, hominy grits, macaroni, rice, rolled oats, wheat cereal, white bread, whole-wheat bread, rye bread, cake, soda crackers
2. Meats
   Sirloin steak, round steak, rib roast, chuck roast, plate beef, liver, veal cutlets, pork chops, pork-loin roast, sliced bacon, strip bacon, sliced ham, whole ham, salt pork, breast lamb, chuck lamb, leg of lamb, lamb rib chops, roasting chicken, canned pink salmon, canned red salmon
3. Dairy products
   Butter, cheese, cream, fresh milk, evaporated milk
4. Eggs
5. Fruits and vegetables
   a) Fresh: apples, bananas, lemons, oranges, green beans, cabbage, carrots, celery, lettuce, onions, potatoes, spinach, sweet potatoes
   b) Canned: peaches, pears, pineapple, asparagus, green beans, pork and beans, corn, peas, tomatoes, tomato soup
   c) Dried: peaches, prunes, raisins, black-eyed peas, lima beans, navy beans
6. Beverages and chocolate
   Coffee, tea, cocoa, chocolate
7. Fats and oils
   Pure lard, lard compound, vegetable shortening, salad oil, mayonnaise, oleomargarine, peanut butter
8. Sugar and sweets
   Sugar, corn syrup, molasses, strawberry preserves

It is difficult to obtain a satisfactory list of food items to be used as a basis for a price study among different kinds of stores. Two difficulties are especially important. First, the list must contain items which are comparable from store to store. Second, the items used must represent fairly well, and in the right proportions, the things actually bought by the consumer; otherwise the results will not show what we wish to know, that is, how much more does it actually cost a consumer to shop in one store as compared with another.

Most investigators have tried to solve the first difficulty by gathering prices only on nationally advertised products. Many such products can be found in uniform packages and of uniform

quality in the majority of stores. But this solution is quite unsatisfactory as it neglects so many of the things actually bought by the consumer. Especially does it neglect fresh fruits and vegetables, meats, bulk goods, and private brands. It seems to the writer that these groups are too important to be excluded, in spite of the fact that their inclusion gives rise to the danger of using noncomparable products.

For the eighty-four items used in this study, the following safeguards were taken in an effort to get comparability of prices for the items in the various stores. So far as possible, national brands were used. This took care of the comparability on twenty-nine of the eighty-four items.[8] As regards fruits and vegetables, in each store the items on which prices were quoted were inspected, with the quotations not being entered unless the items seemed comparable to those in the majority of stores. As regards meats, the head butcher of each store was asked what packer's meat and what specific grade (or grades) he handled. This allowed the exclusion of prices quoted on meat superior or inferior to that handled by the majority of stores. As a result, it is felt that a fair degree of comparability was obtained. However, for those who feel that comparative prices on meats are of little value, computations have been made which allow a price comparison among the various types of stores with meats excluded.

The second main difficulty—that of making a price survey which shows the actual price level of a store from the point of view of the consumer—may be met to some degree by proper weighting. The Bureau of Labor Statistics has developed quantity weights for each of the eighty-four items used in this study. These weights are based on a study of consumer consumption of

[8] The national brands used were as follows: Kellogg's Corn Flakes, Quaker's Corn Meal, Pillsbury's Flour, Pillsbury's Hominy Grits, Mueller's Macaroni, Comet Rice, Mother's Rolled Oats, Cream of Wheat, Chase and Sanborn Coffee, Tenderleaf Tea, Baker's Cocoa, Baker's Chocolate, Crisco, Wesson's Oil, Blue Ribbon Mayonnaise, Beechnut Peanut Butter, Karo Corn Syrup, Brer Rabbit Molasses, Bond Bread, National Excel Soda Crackers, Kraft's American Cheese, Carnation Evaporated Milk, Del Monte Peaches, Del Monte Pears, Del Monte Pineapple, Del Monte Asparagus, Campbell's Pork and Beans, Campbell's Tomato Soup, Sun Maid Raisins.

the various items. In addition, weights have been developed to show the importance of each of the eight commodity groups into which the eighty-four items can be divided. While these weights cannot be accepted as absolutely correct, they may be accepted as reasonable approximations, and their use probably gives a much better picture than would be given by an unweighted study. As but a few readers may be interested in the exact procedure followed in weighting, a description of this procedure will be confined to a footnote.

GENERAL RESULTS

The general results of the study appear in Table 1.[9] It is evident that in both Syracuse and Utica the supermarkets operated by the old-line chains are underselling the independent supermarkets. In Syracuse independent supermarket prices average

[9] Because of lack of sufficient quotations in all kinds of stores, it was necessary to reduce the original list of 84 items to 80 for Syracuse and to 83 for Utica. For Syracuse compound, peanut butter, rice, and bulk peaches were dropped while for Utica peanut butter was dropped.

The figures in Table 1 are index numbers obtained by the weighted aggregative method. The steps involved may be illustrated by noting how the single figure of 105.5 was obtained for Syracuse independent supermarkets. Similar steps led to each of the other index numbers.

(1) The mean was computed for prices quoted by the six independent supermarkets on each of the 80 items.
(2) The mean for each item was multiplied by the B.L.S. quantity weight for Syracuse (cf. mimeograph release of the Bureau of Labor Statistics on "Quantity Weights for 84 Food Items Used in the Computation of the Index of Food Costs in 51 Large Cities of the United States").
(3) The products obtained in the preceding step were placed in the B.L.S.'s eightfold classification and each group was totaled.
(4) Each of these sums was divided by the comparable sum for old-line chain supermarkets in Syracuse, and the result was multiplied by 100. This gave the group index numbers for independent supermarkets as shown in Table 2.
(5) Each group index number was multiplied by the appropriate B.L.S. group weight and the results totaled. This total was divided by the comparable total for Syracuse old-line chain supermarkets, and the result multiplied by 100. The result was 105.5 where 100 equals the price level in old-line chain supermarkets.

This is the same method as that used by the Bureau of Labor Statistics. For more details cf. F. M. Williams, M. H. Hogg, and E. Clague, *Revision of Index of Cost of Goods Purchased by Wage Earners and Lower-salaried Workers* (Washington: Government Printing Office, 1935), pp. 1–7.

5.5 per cent more than old-line chain supermarket prices while in Utica the comparable figure is 11 per cent. However, the 11 per cent figure for Utica somewhat overstates the competitive position of the old-line chain supermarkets as in this city there are two supermarket chain units with prices but 4.8 per cent in excess of old-line chain supermarket prices. Moreover, the price advantage of Utica's old-line chain supermarkets lies largely in fruits and vegetables. When these are excluded, supermarket chain prices average but 0.4 per cent in excess of old-line chain

TABLE 1

CHAIN AND SUPERMARKET FOOD PRICES, UTICA AND SYRACUSE, 1939

TYPE OF STORE	SYRACUSE		UTICA		
	80 Items, Including Meats	59 Items, Excluding Meats	83 Items, Including Meats	62 Items, Excluding Meats	54 Items, Excluding Fruits and Vegetables
Old-line chain supermarket	100.0	100.0	100.0	100.0	100.0
Supermarket chain	.....	.....	104.8	108.7	100.4
Independent supermarket	105.5	104.2	111.0	114.2	102.5
Old-line chain self-service	98.3	99.2	.....	.....	.....
Old-line chain combination	108.5	108.4	104.4	103.1	102.5
Old-line chain grocery	.....	105.4	.....	103.1	.....

supermarket prices while independent supermarket prices are but 2.5 per cent higher. But it still remains true that neither the independent supermarkets nor the supermarket chain units of Syracuse and Utica are maintaining a general price level as low as that existing in the recently opened supermarkets of the old-line chains.

A second fact evidenced by the data of Table 1 is that the old-line chains are quoting significantly lower prices in their supermarkets as compared to their own combination and straight grocery stores. In Syracuse prices in the combination stores average 8.5 per cent in excess of old-line chain supermarket prices while in Utica the comparable figure is 4.4 per cent. Prices in old-line chain grocery stores are 5.4 per cent above old-line chain supermarket prices in Syracuse and 3.1 per cent in Utica.

While old-line chains are quoting lower prices in their supermarkets as compared to their own combination and grocery stores, it is equally important to note that, as compared with independent supermarkets and supermarket chains, these latter stores are in a fair price position. While in Syracuse chain combination stores are being undersold by independent supermarkets by about 2.8 per cent, in Utica they are considerably underselling independent supermarkets and quoting prices equal to those in the supermarket chains. Old-line chain grocery stores in Syracuse are being undersold by independent supermarkets by less than 1 per cent, while in Utica these chain stores have an important price advantage.

A third important fact disclosed by Table 1 concerns the newer self-service combination stores which the old-line chains are opening. As already noted, both the A. and P. and the American Stores have units of this type in Syracuse. At the time when this study was made the price level in these stores was slightly below that existing in any of the other kinds of stores investigated, prices being 98.3 per cent of those quoted in old-line chain supermarkets. If these stores can make a satisfactory profit at such a low price level, the old-line chains may have found an effective answer to independent supermarket competition.

A word should be added to avoid misinterpretation of the preceding paragraph. While the average price level in old-line chain self-service units is below that of old-line chain supermarkets, this does not mean that an old-line chain operating both of these types of stores quotes lower prices in the smaller self-service unit. As mentioned already, American Stores has identical prices in its smaller self-service units and in its supermarkets, while the A. and P. has slightly higher prices in its smaller self-service units. What makes the self-service price level below that of the old-line chain supermarkets in Syracuse is the fact that all of Syracuse's old-line chain supermarkets are not operated by the A. and P. and American Stores.

In this study no attempt was made to gather prices from independent food stores other than supermarkets. However, it is possible to make a rough estimate of how prices in the smaller

independent stores would compare with those quoted by the kinds of stores included in Table 1. A number of studies indicate that the smaller independent food stores still quote prices from 6 to 8 per cent in excess of those in old-line chain combination service stores.[10] In order to be conservative, let us take 5 per cent as a minimum estimate of this differential in Syracuse. This allows us to put the Syracuse situation as follows (once again letting prices in old-line chain supermarkets equal 100):

Old-line chain supermarkets	100.0
Independent supermarkets	105.5
Old-line chain service combination	108.5
Smaller independent service stores	113.9

If these figures are even approximately correct, they give evidence enough to explain why many independent food-store operators are changing over to the larger type of food store.

RESULTS BY COMMODITY GROUPS

Table 2 gives a commodity-group breakdown of prices in the six types of operation covered by this study.[11] It allows one to see in which commodity group each kind of operation makes its best and poorest price showing. While detailed discussion of this table is not necessary, it should be noted that in Utica the old-line chain supermarkets had a price advantage as compared with independent supermarkets in five of the eight commodity groups, and in Syracuse in seven of the eight groups. Thus the price advantage of the chain is spread over many items rather than being concentrated, as is so often charged, on a few leaders. In Utica independent supermarket prices were high especially on fruits and vegetables and fats and oils. In Syracuse only for fats and oils were independent supermarket prices considerably above those of the old-line chain companies.

CHAIN PRICE ADVANTAGE SPREAD OVER MANY ITEMS

Table 3 shows even more clearly the fact that the price advantage of the old-line chain supermarkets is well distributed over

[10] Cf. studies summarized in T. N. Beckman and H. C. Nolen, *The Chain Store Problem* (New York: McGraw-Hill Book Co., 1938), p. 112.

[11] For the method of computing the figures of this table cf. the first four steps listed in n. 9, above.

TABLE 2

CHAIN AND SUPERMARKET FOOD PRICES BY COMMODITY GROUPS, SYRACUSE AND UTICA, 1939

Commodity Group	City	Old-Line Chain Supermarket	Supermarket Chain	Indep. Supermarket	Old-Line Chain Self-service	Old-Line Chain Combination	Old-Line Chain Grocery
Cereal and bakery	Syracuse	100.0	.....	103.8	99.5	102.6	102.8
	Utica	100.0	102.6	99.2	.....	95.5	102.8
Beverages	Syracuse	100.0	.....	103.4	109.8	104.9	107.1
	Utica	100.0	94.9	97.4	.....	102.4	107.9
Fats and Oils	Syracuse	100.0	.....	132.5	101.4	126.2	119.6
	Utica	100.0	114.9	127.1	.....	106.3	111.8
Sugar and sweets	Syracuse	100.0	.....	106.8	101.6	103.4	104.0
	Utica	100.0	100.6	101.2	.....	103.5	105.4
Dairy products	Syracuse	100.0	.....	103.7	99.7	100.9	100.6
	Utica	100.0	102.2	102.8	.....	100.4	101.1
Eggs	Syracuse	100.0	.....	91.5	96.6	118.6	113.5
	Utica	100.0	105.0	95.0	.....	105.0	100.0
Fruits and vegetables	Syracuse	100.0	.....	103.0	95.1	118.3	107.2
	Utica	100.0	130.0	159.9	.....	115.0	102.9
Meats	Syracuse	100.0	.....	108.6	96.3	108.6	.....
	Utica	100.0	95.8	103.7	.....	107.2	.....

TABLE 3

NUMBER OF ITEMS ON WHICH OLD-LINE CHAIN SUPERMARKETS QUOTED PRICES IN EXCESS OF, EQUAL TO, AND LESS THAN INDEPENDENT SUPERMARKETS

Chain Prices	Number of Items			
	Syracuse	Utica	Average	Percentage
In excess of independent on	13	25	19	23.1
Equal to independent on	3	9	6	7.4
Below independent on	65	49	57	69.5
Totals	81	83	82	100.0

the list of items included in this study. This is true especially in Syracuse, where the independent supermarkets quoted lower prices on but 13 of the 81 items available for comparison. For the two cities combined, independent supermarkets quoted lower prices on but 23.1 per cent of the items and comparable prices on but 7.4 per cent. Put another way, the old-line chain supermarkets had lower prices on nearly 70 per cent of all the items included in the study.

A. AND P. ZONING PLAN

An interesting by-product of the present study is some information on the pricing system followed by the A. and P. in the Syracuse territory. Apparently, something less than two hundred stores are included in this territory.[12] For pricing purposes each of these stores is placed in a certain price zone, each zone representing a different average price level. At the time this study was made there seemed to be five or six zones in the Syracuse territory, the stores in the lowest price zone being—in the main—large self-service supermarkets and those in the highest price zone being straight service grocery stores.

In general this price zoning system is based on the difference in operating cost of the various types of stores. Those stores which achieve a large turnover on a self-service basis tend to have a relatively low operating cost so they are placed in the low-price zone. On the other hand, high-cost stores get in a high-price zone. However, this price zoning system gives the A. and P. a considerable amount of price flexibility which enables it to meet price competition quickly and without loss of authority on the part of headquarters. If a certain store is faced with severe price competition, this situation can be handled merely by shifting the store from its present price zone to another (lower) zone. Thus a service combination store may be shifted to a price zone which allows it to quote self-service prices on fresh fruits and vegetables and/or on meats.

The different price levels in the various zones may be illustrated

[12] However, this number is decreasing as, in line with the firm's nation-wide policy, small stores are being closed in favor of a smaller number of larger stores.

by a comparison of prices in a sample of Syracuse A. and P. stores of various types of operation. This is done in Table 4, where 78 items quoted by both supermarkets and self-service combination stores and 55 items quoted by self-service combination stores and straight grocery stores are classified. Notice that 9 items carried higher prices in supermarkets than in self-service

TABLE 4

PRICE COMPARISON FOR A. AND P. STORES OF DIFFERENT TYPES OF OPERATION, SYRACUSE, 1939

CLASSIFICATION	NUMBER OF ITEMS			
	Groceries, Including Canned Meats	Fresh Fruits and Vegetables	Fresh Meats	Total
I. Supermarket prices compared with self-service combination:				
Higher	0	2	7	9
Same	25	6	6	37
Lower	23	3	5	32
II. Self-service combination prices compared with straight grocery-store prices:				
Higher	1	1	.....	2
Same	29	6	.....	35
Lower	14	4	.....	18

combination stores while 32 carried lower prices. This indicates a lower price level in the supermarkets. As regards self-service and service grocery stores, of the 55 items the former quoted lower prices on 18 and was undersold by the latter on but 2 items.

CONCLUSIONS

As regards the price level in various types of chain stores and in independent supermarkets of Syracuse and Utica, the following conclusions may be drawn from this study.

1. Old-line chain supermarkets are underselling independent supermarkets in both cities, independent supermarket prices being 5.5 per cent higher in Syracuse and 11 per cent higher in Utica. They are also underselling supermarket chains in Utica

(and also in Syracuse if the Par Supermarkets are considered as operated by a supermarket chain), prices of such supermarket chains being 4.8 per cent higher than prices in the old-line chain supermarkets. These price differentials suggest that we may expect a further increase in chain operation of supermarkets in these two cities.

2. In the older combination service units of the old-line chains the prices quoted average from 4.4 per cent (Utica) to 8.5 per cent (Syracuse) in excess of those in the supermarkets operated by the same companies. This also suggests that, subject to the limitation that many people may not like to travel some distance to shop at a large self-service store, the present trend toward supermarket operation by the old-line food chains is likely to continue.

3. In Syracuse the prices in the combination units of the old-line chains were somewhat in excess of those in independent supermarkets, while in Utica the reverse was true.

4. The smaller self-service stores being opened by the old-line chains have a price level practically the same as that existing in the supermarkets being operated by these same firms.

5. It seems likely, although this study did not gather data on this point, that smaller independent food stores may be quoting prices which in Syracuse average as a minimum as much as 14 per cent in excess of those in old-line chain supermarkets.

6. The low average price level in the supermarkets of the old-line chains is not a result of drastic reductions on a few items with fairly high prices being maintained on the majority of items. Taking Syracuse and Utica as a whole, old-line chain supermarket prices were lower on nearly 70 per cent of the items included in the study.

ACTIVE, LOW-PRICED COMMON STOCKS VERSUS THE DOW-JONES INDUSTRIALS

COMPARISON OF THE PRICE FLUCTUATIONS OF CERTAIN LOW-PRICED COMMON STOCKS WITH THOSE OF THE DOW-JONES THIRTY INDUSTRIALS

EDWIN REES FISCHER

I. PURPOSE OF THE STUDY

THE primary purpose of this study is to determine whether the price behavior of low-priced common stocks, selected under varying conditions (i.e., in various phases of the business cycle) and on the basis of certain quantitative criteria, is superior to the price behavior of high-priced stocks. As noted in one leading text on investment analysis: "Low-priced common stocks appear to possess an inherent arithmetical advantage arising from the fact that they can advance so much more than they can decline."[1] In line with this purpose, the price behavior of low-priced common stocks is compared with that of the Dow-Jones thirty industrials.[2]

A secondary objective of the study of almost equal importance is to determine whether an investor or speculator can, by concentrating his attention on certain groups of low-priced stocks under varying conditions, secure greater profits on the average than the gains to be realized through the concentration of attention upon other groups of low-priced stocks. In this latter connection the measurement of the relative effectiveness of various criteria of selection is, perhaps, the most important problem to be attacked.

The writer is aware of the limitations on the selection of securities by reference to quantitative factors alone (e.g., past earnings, price-earnings ratios, the ratio of common stock to total

[1] Benjamin Graham and David L. Dodd, *Security Analysis* (New York: McGraw-Hill, 1934), p. 473. This arithmetical advantage is suggested by the greater probability of an issue rising from 10 to 40 than from 100 to 400.

[2] The reasons for using this particular group of stocks are given on pp. 338, 339.

capitalization, current ratios, and the like). The importance of qualitative analysis (e.g., to estimate future business and political conditions, and to determine the prospects of a corporation) is too clear to require emphasis. But the selection of securities on the basis of an analysis of qualitative considerations (as opposed to quantitative factors) is so highly individualized and so ill-adapted to mathematical treatment that it has been excluded from this study. The future prospects of an industry or enterprise are largely anyone's guess, when the guessing is dissociated from a quantitative record of performance. To preclude the introduction of hindsight into this study, the selection of various lists of common stocks was based on quantitative factors alone.[3] It seemed plausible, however, that stocks selected on the basis of certain quantitative criteria might produce better results than issues picked according to other quantitative standards.

Previous studies of the behavior of low-priced common stocks suffered from two main defects. First, they assumed that the selections of the stocks were made only at stock-market or business "lows."[4] Second, they applied quantitative criteria to obtain only one selection of low-priced stocks at any particular date. No attempt was made to determine whether selections of low-priced common stocks, chosen according to other criteria at the same date, fared better or worse than the original selection. This study, unlike most of its predecessors, considers phases of the business cycle other than the "low," and applies various criteria to obtain, at a particular date, several selections of low-priced common stocks whose subsequent market behavior may be compared, one with another. The quantitative criteria which were applied in an effort to evaluate their relative importance were:

1. The presence or absence in the capital structure of funded indebtedness, maturing within three years after the date of selection.

[3] An instance of such a selection is: 60 common stocks, selling between $1.00 and $10 per share on April 30, 1937, which were most active on the stock market for the four months preceding the date of selection.

[4] The few exceptions to this are noted in § III.

2. The presence of or absence of a record of some earnings on the common stock.

3. The size of a corporation as measured by its gross revenues.

4. The percentage decline from previous year's high to current market price.

5. The capital structure of the corporation—i.e., capitalization entirely by common stock versus capitalization marked by a low percentage of common.

6. Activity (comparing the most active in the original selection of active stocks with the least active in the same group). Activity is defined here as the number of shares sold on the New York Stock Exchange during a period of at least four months preceding the date of selection.

7. The fact that the current asset value per share of common[5] exceeds the current market price.

8. Selection according to various groups of the afore-mentioned criteria.

9. Selection according to a random method.

The common stocks selected were limited to the most active in the one-to-ten-dollars-per-share price range.[6] Activity was an arbitrary criterion insisted upon because of the attractive feature of marketability. In the interest of diversification railroads and public utilities, as well as industrials, were included in the various lists of active low-priced common stocks.

It is significant that an equally good case could be made for each of several other conceivable lists of criteria. However, it seemed that a weak current position, evidenced by a near-by bond maturity, might indicate approaching trouble to the corporation concerned. Similarly, it was felt that a corporation with a relatively good record (as measured by the presence of some earnings on the common) might fare better on the average than a corpora-

[5] Current asset value per share of common is determined by subtracting all liabilities and claims ahead of the common from the current assets and dividing by the number of shares of common outstanding.

[6] Stocks selling below $1.00 per share were excluded from the study because in this group the possibility of dissolution and complete loss to the shareholder appeared to be too great in most instances. The upper limit of $10 per share was, of course, optional.

tion with a poor record. The size of the corporation conceivably might be important in enabling a company to survive a particularly trying period when a smaller corporation might go under. In this connection, such factors as relative ease of floating an issue of securities or negotiating a bank loan, and well-established trade contacts, are obviously in favor of the larger corporation.

The fact that a corporation was recently highly considered and subsequently fell from grace—as evidenced by a high percentage decline from the previous year's high market price—might make the common stock of that corporation a good speculative purchase. The capitalization of a corporation seemed to be a factor deserving consideration. Study of the relative behavior of corporations capitalized 100 per cent by common stock, and corporations with a low ratio of common to total capitalization, would, perhaps, throw some light on the importance of leverage.[7] A comparison of the most active with the least active issues, it was felt, might be fruitful.[8] The phenomenon of common stocks selling in the market at prices lower than their current asset values seemed interesting enough to warrant further study. The various combinations of these criteria which the writer selected were, of course, arbitrary. Selection at random of a group of low-priced common stocks was considered necessary to evaluate the efficacy of selecting stocks on the basis of these quantitative criteria.

It must be remembered that these criteria were to some extent arbitrarily selected. The standards applied seemed to relate to important factors warranting consideration in the evaluation of the prospects of a corporation. It was felt that the application of one criterion rather than another might isolate and bring into view a group of stocks the subsequent price behavior of which would be relatively satisfactory. But other conceivable standards and other groupings might have been used with equal justification.

[7] Leverage was defined, for the purposes of this study, as the presence in the capitalization of a corporation of any issue of securities senior to the voting common stock.

[8] It should be noted that all the low-priced common stocks studied were relatively active.

II. METHODS USED IN THIS STUDY

In order to determine the dates at which the selections of low-priced common stocks would be made—with the purpose of including all phases of the business cycle—the Federal Reserve Board Index of Industrial Production was consulted. Eight selections were made, as shown in Table 1.

The difficulty of forecasting the future of business activity by observing the record of any economic index and of determining the phase of the business cycle currently existing at any particular

TABLE 1

DATES OF SELECTION OF LOW-PRICED COMMON STOCK

Number of Selection	Date of Selection	Reason for Selection at This Particular Date
I	August 30, 1929	Shortly before 1929 crisis
II	July 1, 1931	One year before 1932 low (during a recession)
III	July 1, 1932	Approximate date of a severe low (pit of depression)
IV	July 1, 1933	One year after 1932 low (near beginning of recovery period)
V	November 30, 1935	During a recovery. Approximately midway between 1932 low and 1937 high
VI	April 30, 1937	Immediately before 1937 crisis
VII	November 30, 1937	During a recession (about midway between 1937 high and 1938 low)
VIII	August 31, 1938	During the recovery following the 1938 low

time is apparent. But an index of industrial production seemed to be the most acceptable expedient for picking the dates of selection. By the inclusion of all the main phases of the business cycle, it was hoped that the study would assume a representative character.

At each of the eight dates of selection an array was made of those common stocks selling between one and ten dollars per share. These stocks were ranked according to activity (number of shares sold during a period of at least four months preceding the date of selection) and the sixty most active stocks were grouped. As a rule, the activity on a yearly basis of the least active of the sixty stocks chosen was about 200,000 shares. Because of this relatively intense activity, and in order to keep the various groups

comparable, the group selected in 1929 was limited to thirty-odd corporations. The comparative scarcity of active, low-priced common stocks before the 1929 crisis necessitated a small sample.

In each group, corporations in receivership at the date of selection and those with pseudo-common stocks (e.g., Class A stock) in their capital structure, were eliminated. The final group, in each case, consisted of the original sixty, less those corporations that were eliminated. To simplify the problem of future reference to individual corporations in each group, the issues were arranged alphabetically, and each was assigned a number in regular sequence.

In order to apply the criteria of selection, various manuals were consulted to obtain the relative facts about each corporation's immediate past. In each group the following selections were made:

1. Those corporations with funded indebtedness maturing within three years
2. Those corporations without funded indebtedness maturing within three years
3. Those corporations with a record of some earnings on common stock in four out of five previous years
4. Those corporations without a record of some earnings on common stock in four out of five previous years
5. Ten corporations with highest gross revenues for the previous year
6. Ten corporations with least gross revenues for the previous year
7. Ten corporations, the common stock of which showed the greatest percentage decline from the previous year's high to the price at the date of selection
8. Ten corporations, the common stock of which showed the least percentage decline from the previous year's high to the price at the date of selection (*or* those corporations, the common stock of which showed no decline from previous year's high)
9. Ten corporations with highest ratios of common to total capitalization (*or* those corporations capitalized entirely by common stock)
10. Ten corporations with the lowest ratios of common to total capitalization
11. Ten most active stocks of the group
12. Ten least active stocks of the group
13. Those corporations, the common stock of which had a current asset value exceeding the current market price.
14. Ten corporations ranking highest on the basis of the following criteria:

a) No funded indebtedness maturing in three years
b) Highest gross revenues
c) Common stock showing the greatest percentage decline from previous year's high

15. Ten corporations ranking highest on the basis of the following criteria:
a) No funded indebtedness maturing in three years
b) Greatest percentage decline from previous year's high

16. Ten corporations ranking highest on the basis of the following criteria:
a) Highest gross revenues
b) Lowest ratios of common to total capitalization

17. Random selection

It was assumed that for each of the corporations selected in a group, one share of common stock was purchased. Manual figures[9] were accepted at face value—i.e., they were not altered to reflect such things as "reasonable" reserved and "true" earnings. In the event of: (*a*) receivership or bankruptcy, (*b*) default on funded indebtedness, (*c*) recapitalization requiring additional investment of the stockholders, (*d*) withdrawal of the common shares from the New York Stock Exchange, the common stock was assumed to be sold at the average of the high and low prices for the month in which the event took place.

No provision was made for the replacement of corporations whose common stocks were assumed to be sold in accordance with the foregoing. For convenience of calculation, the proceeds from the assumed sale of common stock were kept constant—i.e., no interest was allowed—from time of the sale to the present (March 31, 1939). Broker's commissions and fees and government taxes were excluded from the calculations. In determining funded indebtedness, mortgages payable were included with bonds payable. Also, a corporation was assumed to have funded indebtedness maturing in three years only if such maturing funded indebtedness equaled at least 3 per cent of the previous year's gross revenues. A holding company was assumed to have earnings on its common only if earnings on the common were indicated on both a "parent-only" and a "consolidated" basis.

[9] *Standard Corporation Records* and the *Commercial and Financial Chronicle* were consulted for particulars concerning financial statements and market price quotations, respectively.

If the figure for gross revenues was not reported in the manuals, the figure for gross sales (or net sales) was used to estimate the relative size of the corporation. If none of these figures was reported for a particular corporation, the latter was excluded from the tests relating to gross revenues. In the case of a holding company, the gross income of the "parent only" was taken. This understatement seemed preferable to the overstatement that would occur if the gross income on the consolidated basis were accepted.

In the determination of total capitalization, funded indebtedness was taken at par, preferred stock at par, and common at market. If the preferred stock was low-par or no-par in form, the redemption value, in the event of involuntary liquidation, was taken. This method of determining capitalization, although somewhat arbitrary, seemed to be most useful for the purpose at hand, in view of the very real danger of liquidation facing many of the corporations whose common stocks sold between the one- and ten-dollar levels.

In grouping the corporations selected on the basis of several criteria, the corporations were first ranked according to each individual criterion, and then the rankings of each corporation in the criteria in question were added. The ten corporations having the lowest totals of rankings (indicating that they ranked well on the basis of the individual criteria) were selected.

To obtain the random selection, the corporations in each group were arranged alphabetically, and assigned numbers in sequence. The random selection was made to consist of the corporations corresponding to the first ten numbers "drawn out of a hat."

On the basis of the data obtained from the manuals for the various criteria, the stocks were ranked. For example, in the test of activity (number of shares traded in during a period of at least four months previous to the date of selection), the stocks were ranked, alphabetically, one to fifty-five—if there were fifty-five stocks in the particular group. Those ranking one to ten, inclusive, constituted the most active group.

In ranking those corporations with or without bonds maturing in three years, "plus" or "minus" signs respectively were given.

All those in the "plus" class were assumed to be alike and were treated as a unit. Those in the "minus" class, too, were allowed to remain unnumbered and were considered as a class.

Price quotations were obtained for the issues of each group at various dates. Thus, in Group VII (consisting of fifty low-priced stocks selected on November 30, 1937), the low price for the day for each corporation was obtained for: (1) November 30, 1937 (the base period), (2) May 31, 1938, (3) August 15, 1938, (4) March 31, 1939. It is to be noted that these various dates (other than the base date, when the group was originally selected) represented stock-market highs and lows as indicated by the behavior of the Standard Statistics Index of ninety stocks. The purpose of selecting these particular dates was to note the market-price behavior of the selection of common stocks (chosen according to the various criteria) at various phases of the stock-market cycles.

The market behavior of each selection of stocks was observed from the base period (when the groups of stocks as a whole were selected) to the present (March 31, 1939). To simplify the problem of comparing the behavior of one selection with that of another, index numbers were used. Thus, for example, if in Group VII the ten most active stocks had a total value of fifty dollars on November 30, 1937, the index number for that base period would be "100." If the ten stocks fell in value to forty-five dollars on May 31, 1938, the index number for that date would be "90."

The relative merit of each criterion was determined by noting how the various selections of stocks prospered or suffered after the base period. Thus, in Group VII, if on May 31, 1938, the most active stocks fell to an index number of "90," and suffered the least decline of all the selections, a ranking of "1" was given this selection. Similarly, if the selection of the ten corporations with least gross revenues suffered the next least drastic decline (e.g., to an index number of 88), it was given a ranking of "2."

To determine the relative superiority of one criterion over another, the total of each of the rankings of every criterion, for the respective dates subsequent to the base date, were added. That criterion with the lowest total (indicating that it ranked rather

well throughout the period), was given a "grand"[10] ranking of "1." For example, in Group VII those corporations capitalized entirely by common stock ranked "3," "1," and "1" on May 31, 1938, August 15, 1938, and March 31, 1939, respectively. The total of the rankings, "5," was the lowest of the entire lot. Consequently, that particular criterion for Group VII was given a "grand" ranking of "1."

The figures for the Dow-Jones thirty industrials were reduced to index numbers to permit comparison of their behavior with that of the low-priced groups of stocks, as a whole, and selections of stocks in each of the eight groups chosen according to certain criteria. The figure for the Dow-Jones industrials at the base date of the group was, of course, "100." Subsequent averages were altered to conform to variations from the base figure. Originally, it was intended to compare the diversified groups of low-priced stocks in this study with the Dow-Jones average of seventy stocks (containing the comparatively high-priced common stock of thirty industrials, twenty railroads, and twenty public utilities). The groups of active, low-priced stocks actually obtained, however, were predominantly industrial, due to the fact that a high percentage of the common stocks selling in the one-to-ten-dollar price range were industrial issues. The readily available, well-known Dow-Jones thirty-industrials stock average—composed of relatively high-priced, active industrial common stocks—seemed most appropriate for comparison with the active, predominantly industrial, low-priced common stocks in this study.

To determine the final rankings of the criteria, for the eight groups as a whole, the eight sets of grand rankings were totaled, and that criterion with the lowest total of grand rankings was given "1" in the final ranking. Thus, in Groups I to VIII inclusive, the criterion of capitalization solely by common stock achieved grand rankings of 1, 9, 4, 6, 1, 6, 1, 2. These grand rankings, when added, totaled 30, which happened to be the lowest total. Hence, the final ranking of 1 for that criterion. The number of times a particular criterion was applied was taken into

[10] The terms "grand" ranking and "final" ranking were arbitrarily selected.

account. Criterion No. 15 was not given a final ranking because it was applied in only two out of the eight groups.

III. PREVIOUS STUDIES MADE ON LOW-PRICED COMMON STOCKS

Despite the seeming importance of low-priced common stocks as a group, relatively few studies have been made of them. The research staffs of brokerage houses and investment periodicals have been the chief contributors to this field. An evaluation of these studies is appropriate.

In a circular distributed by a brokerage firm, presumably for the purpose of stimulating trading in the apparently attractive field of low-priced stocks, appears:

> An investment of the trend of stock prices in various other depression years (1897, 1907, 1914, 1921) shows that the lower priced stocks (for which we took $12 per share as an optional high limit) tend to increase in price relatively more than so-called leading issues. Three years after the periods taken, the low-priced stocks had advanced, on the average, 3.45 times, against 1.71 for the leading issues. We have also tried to show that an arbitrary amount invested in a large group of the low-priced stocks will show better results over a period than the same amount of money invested in the leading issues.[11]

The conclusion to be derived from the foregoing is that, at depression levels, low-priced common stocks promise a strikingly more attractive recovery than do the "blue chips," or market leaders. It follows that, if one is sufficiently fortunate to be able to detect a depression low when it appears, the field of low-priced common stocks offers singular profit-making possibilities.

L. H. Fritzemeier, in 1936, commented on the market behavior of low-priced common stocks.[12] To appreciate more fully his conclusions, a brief description of his plan of attack is in order. At each date of selection, Fritzemeier arranged the industrial stocks

[11] J. H. Holmes and Co., *Low-priced Common Stocks for a Diversified Investment* (New York, 1931). A study of the table presented in the circular reveals that the low-priced stocks had advanced from a level of 100 per cent to a level of 345 per cent against an advance from a level of 100 per cent to a level of 171 per cent for the leading issues. This point, made clear in the tabular presentation, is confusingly stated in the foregoing quotation.

[12] "Relative Price Fluctuations of Industrial Stocks in Different Price Groups," *Journal of Business of the University of Chicago*, April, 1936, pp. 133–54.

listed on the New York Stock Exchange in six price groups. Group 1 consisted of those stocks selling under $10 per share. Groups 2 to 6 were composed of stocks selling in the price ranges $10–$25, $25–$50, $50–$75, $75–$100, $100 and over, respectively. Second, the stocks were ranked according to the number of shares traded in during the previous year. Third, the first ten stocks in each price group which were rated as "Ca," "Caa," and "B," or "Ba" by Moody's Investment Service were selected to be used in constructing an aggregate weekly index number for each price group throughout the year. The period from the beginning of 1926 to the beginning of 1935 was studied. Fritzemeier found:

> A speculator entering the market the first Saturday in any year from 1926 to 1934 inclusive, and withdrawing on the first Saturday in 1935, would have made profits, more or less, irrespective of what year he entered the market, had he dealt in stocks representative of the stocks included in Group I of this study. A speculator, dealing in stocks representative of Groups 3, 4, 5, or 6, would have made profits only if he entered the market after 1932. He would have suffered losses had he entered in any year from 1926 to 1931 inclusive. Group 2 would have been profitable in all other years.[13]

Fritzemeier concludes:

> In a "bull" market, the low-price stocks tend to go up relatively more than high-price stocks, and they do not lose these superior gains in the recessions which follow. In other words, the downward movement of low-price stocks is less than proportional to their upward movement, when compared with the upward and downward movement of high-price stocks.[14]

According to Fritzemeier's study, then, low-priced common stocks during the period 1926 to 1935 turned out to be more profitable commitments than high-priced stocks. That the speculator entering the market at the beginning of any year from 1926 to 1934, and withdrawing in January, 1935, would have made profits is surprising. It is noteworthy in passing that Fritzemeier's study tends to minimize the practical value of Moody's ratings. The stocks in each group, it will be remembered, were ranked approximately equally by Moody's. Despite this, there turned out to be significant differences in market behavior among the various price groups. The fact that Fritzemeier's study is not especially

[13] *Ibid.*, p. 147. [14] *Ibid.*, p. 153.

recent may reduce its practical value in the stock market of today, which is a substantially different market from that of 1926 to 1934.[15]

Various articles published in financial periodicals from time to time are pertinent in the consideration of low-priced common stocks.[16] Taking all stocks selling for less than ten dollars, or making a choice on the basis of the heaviest market losses in the previous decline, and assuming that the stocks would be held two years after the low and then sold, Mark Casey arrived at the conclusions shown in Table 2.

TABLE 2

MARKET-PRICE APPRECIATION OF CERTAIN LOW-PRICED STOCKS COMPARED WITH THAT OF THE DOW-JONES INDUSTRIAL AVERAGE

Assumed Date of Purchase	Assumed Date of Sale	Appreciation in Low-priced Stocks (Per Cent)	Appreciation in Dow-Jones Industrial Average (Per Cent)
11/18/1907	11/18/1909	248.5	86.1
12/12/1914	1/3/1917	221.5	86.5
12/19/1917	1/3/1920	233.6	66.6
8/24/1921	8/24/1923	− 21.4	43.9
3/30/1926	3/31/1928	141.8	57.5
Average		172	68.1

It is significant that in only one of the five periods studied did the low-priced group fail to appreciate at least twice as much as the Dow-Jones industrial average. In other words, in four out of five cases the low-priced stocks, selected at depression levels, fared substantially better than did the higher priced Dow-Jones industrials.

In 1938 L. Tomlinson selected only those common stocks selling under ten dollars per share which had fallen at least 90 per cent from their 1929 highs. He found that

[15] E.g., the stock market between 1926 and 1929 was characterized by spirited speculation by the public and relatively few government regulations. At the present time (1939), light trading by the general public and S.E.C. regulations are typical.

[16] A relevant study is that by Mark Casey, "Speculating in the Submerged Tenth," in *Barron's*, February 9, 1930, p. 3.

records of two actual lists of low-priced stocks selected in 1930 and 1932 show much greater appreciation than the Dow-Jones industrial average at the top of the bull market in 1937, but much more rapid decline in value, percentagewise, since then.[17]

These results lead Tomlinson to conclude that "low-priced stocks in general may be good for the rise, but can hardly be recommended for permanent holding."[18]

It is important to note that, in view of the optional high limit taken (five dollars), it is not surprising that these stocks "may be good for the rise" but cannot "be recommended for permanent holding." If one could expect to find "cats and dogs" anywhere, it would be in the group of common stocks selling at five dollars and less per share. It is conceivable that the inclusion of common stocks selling between five and ten dollars per share might sufficiently improve the diversification of the portfolio to make the latter more attractive for permanent holding.

"The Trader," in his article "Blue Chips vs. Low-Priced Stocks," by noting the market behavior of representative groups of low-priced and high-priced common stocks respectively, concludes:

Detailed study, however, of stock movements since the spring of 1935, which inaugurated an almost uninterrupted two-year rise, shows that huge profits have been obtained in the low-priced group. In percentage gain, there is no high-priced issue to compare with a score or more of stocks selling below 15, that could have been picked up at random. Two thirds of the fifty issues in the low-priced group were able to push forward in excess of 200 per cent.[19]

Here again, even when the date of selection was not at a depression low, low-priced stocks appreciated percentagewise considerably more than the higher priced stocks.

M. C. Holmes makes this contribution:

[A study of price distribution charts reveals that] low-priced stocks tend to reach their highs first. The results of this study run counter to the preva-

[17] "Opportunities and Hazards in Low-priced Stocks," *Barron's*, April 18, 1938, p. 8.

[18] *Ibid.* Note the disagreement between this conclusion and the conclusions reached by Fritzemeier.

[19] *Barron's*, August 30, 1937, p. 6.

lent idea that market leadership by low-priced speculative stocks is a sign of the end of an upward movement.[20]

Later on, he adds:

The stocks which made their lows first are, in general, the low-priced ones. The momentum of the higher class issues seems to carry them on to the final stages of the movement.[21]

This study is interesting mainly because of the light it throws on the timing of the purchase and sale of low-priced common stocks. However, there still remains the difficulty of determining precisely in what phase of the stock-market cycle the speculator happens to find himself.

The first significant study on low-priced stocks was made a quarter of a century ago by T. H. Price.[22] A net profit of 330 per cent on the original investment was found to be made if the railway stocks in receivership (low-priced stocks) were purchased at the low of 1894 and sold at the high of 1906. As the study considered only the active railway stocks of corporations in receivership, it lacks the virtue of diversification. Because of its relative antiquity, its importance may not be great—since, clearly, the market conditions studied by the report are to be sharply distinguished from those of today.

Of doubtful importance also is a report distributed in 1938 by Poor's Publishing Company.[23] The report begins by stating:

This report gives you perspective by supplying you with a background of current conditions, an outline of inflationary prospects, and specific information on fifty low-priced stocks that should outstrip the rest of the market as

[20] "Market Leadership at the Bottoms," *Barron's*, May 24, 1937. See also Holmes, "Does Stock Market Leadership Deteriorate near the Top?" *Barron's*, April 5, 1937, p. 101.

[21] *Ibid.*, May 24, 1937.

[22] *Low-priced Securities—Are They Cheap?* (Harris, Winthrop & Co., 1916).

[23] A somewhat similar study is Hemphill, Noyes & Co., *Low-priced Shares—A Five Year Fixed Trust* (1931). Two of the five reasons for the selection of the stocks for the portfolio of the trust were: "(*a*) because the market price is in the low price range due to stock splitups in recent years, or (*b*) because the original issue price was low" (p. 2). These reasons imply that just because a stock is selling at a low price, *ergo*, it is cheap.

the upward movement progresses, while at the same time providing reasonable safety and protection against inevitable inflations.[24]

It would indeed be consoling if any person or group could predict the future of any market ("as the upward movement progresses"), and the inevitability of inflation. However, these dogmatic statements deserve no more support than any other list of equally reasonable opinions.

The fact that a main purpose of this report was to "sell" the service to new clients is indicated by the following:

For a relatively small fee you can obtain[25] sound and continuously followed-up advice on just how to time your buying (and later on your cashing in on profits) in sound common stocks. Full information will be furnished, without obligation on your part, upon request.[26]

In conclusion, it is pertinent that the foregoing studies are in complete agreement that low-priced common stocks, selected at or around depression levels, turn out to be relatively profitable commitments. Because few of the studies considered the phases of the business cycle other than the "low," it cannot be maintained with equal certainty that low-priced stocks, generally, are superior to high-priced stocks. Because of the tendency of the low-priced group to fall, percentagewise, in a bear market, more than the high-priced group, presumably low-priced stocks should not be held during a recession.[27] During a bull market, however, low-priced stocks give a good account of themselves, according to Fritzemeier and others.

IV. CAN QUANTITATIVE CRITERIA BE APPLIED SUCCESSFULLY TO LOW-PRICED STOCKS?

One of the purposes of this study is to determine whether it is possible to select a superior group of low-priced, active common stocks (superior from the viewpoint of subsequent price behavior) by applying one or a few criteria. With this end in view, the market behavior of those stocks with an earnings record has been

[24] Poor's *Special Report on Fifty Low-priced Stocks* (1938), p. 1.

[25] I.e., from Poor's Investment Service.

[26] Poor's *Special Report on Fifty Low-priced Stocks*, p. 20.

[27] Note that this conclusion is not reached by Fritzemeier.

contrasted with the market behavior of those stocks without an earnings record, and so on. The elaborate ranking method was utilized to enable one to see at a glance whether stocks selected according to a certain criterion fared better or worse than stocks picked on the basis of another standard.

An inspection of Table 3 reveals a striking amount of inconsistency. Test No. 9, consisting of ten corporations showing the greatest percentage decline from the previous year's high, shows that the application of this criterion produced relatively excellent results in Groups VI and VII, and exceedingly poor results in Groups III and V. Similarly, in Test No. 10, consisting of ten corporations showing the least percentage decline from the previous year's high, the application of that criterion effected comparatively good results in Groups I and VIII, and decidedly poor results in Groups II, III, and VI. Regarding the significance of the factor of percentage decline, therefore, it can merely be said that at times a high percentage decline would be a good basis for the selection of stocks, while at other times a low percentage decline should be the standard applied. The impossibility of determining precisely when a high percentage decline from a previous market high should be considered a favorable or unfavorable sign renders this criterion of no practical importance.

The positive conclusions that can be drawn from the table of rankings are few. Clearest of all is the fact that corporations, capitalized entirely by common stock, fared better than any of the other selections. What makes this result all the more impressive is that the corporations with the lowest ratios of common to total capitalization placed last in the final rankings of the criteria. Here is a clear case of the superiority of one criterion over another. In eight groups out of eight, corporations capitalized mainly by common stock prospered substantially better than corporations with a low percentage of common in their capitalization. This would indicate that the pressure of meeting fixed charges, and the shadow of preferred-stock dividends, depress the market price of low-priced common stocks. An analysis of the types of corporations included in the various selections shows that there were many weak railroads and public utilities in the selec-

TABLE 3

GRAND AND FINAL RANKINGS OF THE CRITERIA USED IN THIS STUDY*

TEST No.	CRITERIA APPLIED (Corporations)	GRAND RANKINGS								FINAL RANKING
		Group and Date of Selection								
		I 8/30/29	II 7/1/31	III 7/1/32	IV 7/1/33	V 11/30/35	VI 4/30/37	VII 11/30/37	VIII 8/31/38	
3.....	With indebtedness maturing within three years	†	17	8	8	9	11	4	8	11
4.....	Without indebtedness maturing within three years	.....	7	6	7	2	10	6	7	3
5.....	With a record of some earnings on common	3	4	10	3	5	7	2	4	2
6.....	Without a record of some earnings on common	4	12	1	11	3	13	8	9	6
7.....	With highest gross revenues for previous year	6	2	3	2	4	11	14	16	5
8.....	With lowest gross revenues for previous year	14	13	13	10	5	9	12	15	15
9.....	The common of which showed greatest percentage decline from previous year's high	11	4	15	.....	15	1	3	6	8
10.....	The common of which showed lowest percentage decline from previous year's high	2	16	16	.....	7	14	13	1	13

* Reflecting the relative market price behavior of groups of common stocks selected according to various criteria from the dates of selection to March 31, 1939.

† The absence of a ranking indicates that the test was omitted because too few corporations qualified.

TABLE 3—*Continued*

Test No.	Criteria Applied (Corporations)	Grand Rankings: Group and Date of Selection								Final Ranking
		I 8/30/29	II 7/1/31	III 7/1/32	IV 7/1/33	V 11/30/35	VI 4/30/37	VII 11/30/37	VIII 8/31/38	
11.....	With greatest ratios of common to total capitalization	1	9	4	6	1	6	1	2	1
12.....	With lowest ratios of common to total capitalization	7	14	12	9	16	15	16	11	16
13.....	With most active common stocks	5	3	9	5	12	8	9	14	9
14.....	With least active common stocks	9	15	14	12	10	4	11	9	14
15.....	Common of which had a current asset value exceeding current market price	.....	11	2	.....	.....	.....	.....	.....	.....
16.....	Ranking highest *re:* (1) no funded indebtedness, (2) highest gross revenues for previous year, (3) greatest percentage decline from previous year's high	10	1	5	.....	14	3	10	4	4
17.....	Ranking highest *re:* (1) no funded indebtedness, (2) greatest percentage decline from previous year's high	13	8	11	.....	13	2	4	3	7
18.....	Ranking highest *re:* (1) highest gross revenue for previous year, (2) lowest ratios of common to total capitalization	8	10	6	4	11	5	14	11	10
19.....	Selected according to random method	12	6	17	1	8	15	6	13	12

tions stressing low percentage of common in the capitalization structure. This must be kept in mind, as the corporations capitalized entirely by common were industrials.

Second, those corporations with an earnings record on their common did considerably better than the average. With the exception of one group (III) the showing of companies with an earnings background was relatively favorable. In six out of eight groups, corporations with an earnings record did better than corporations without this record. In one out of these six, however, the difference was negligible. This indicates that corporations with fairly successful records as a group are more likely to prosper than corporations with unimpressive pasts.

Third, uniformly poor results were obtained from the application of criteria Nos. 8, 12, and 14. Selections of stocks, made on the basis of the lowest gross revenues for the previous year, low ratios of common to total capitalization, or least activity[28] did not do well. It seems to follow that companies: (*a*) of small size, (*b*) speculatively capitalized, and (*c*) with active but not ultra-active common stocks, should be avoided in the low-priced field.

During a severe depression (e.g., the one culminating in the 1932 low), stocks selected on the basis of the size of the corporations[29] fared rather well. Thus, in Groups II, III, and IV, selections of stocks made on the basis of the size of the corporations ranked "2," "3," and "2" respectively. This performance was substantially better than that of corporations selected on the basis of least gross revenues. Here, too, corporations capitalized entirely by common did consistently better than corporations with a low percentage of common to total capitalization.

An attempt was made to correlate the rankings of Groups I and VI, as both selections were made before crises. The comparison did not prove fruitful; it merely accentuated inconsistencies. For instance, in the low-priced group selected in 1929, the large corporations (Test No. 10) fared better than the small corporations. The opposite was true of Group VI. Similarly, attempts to

[28] It should be remembered that all the corporations included in this study had rather active common stocks.

[29] As measured by the gross revenues for the years preceding the date of selection.

compare the importance of the various criteria in groups of stocks selected at roughly the same phases of the business cycle (e.g., Groups II and VII, which were selected during recessions) failed. The inconsistency of rankings is highlighted by the fact that in Group IV the selection of stocks made at random fared better than any other selection.

The results of the application of various criteria to low-priced stocks selected at various periods of the business cycle lead one to the inevitable (but not novel) conclusion that quantitative standards alone cannot be depended upon to yield satisfactory results. The varying and apparently haphazard behavior of selections of stocks picked according to the same criterion (but at different phases of the business cycle) makes abundantly clear the unreliability of quantitative criteria. One of the few positive conclusions arrived at was that corporations capitalized entirely by common, everything considered, did rather well. It is relevant that, even here, the application of this criterion in four out of the eight groups (II, IV, VI, VII) produced selections whose performance was only mediocre. Despite the logic that would seem to favor a large rather than a small corporation, and a corporation with a good past[30] rather than a company with an unimpressive past, there do not appear any clear-cut differences in the market behavior of these respective groups.

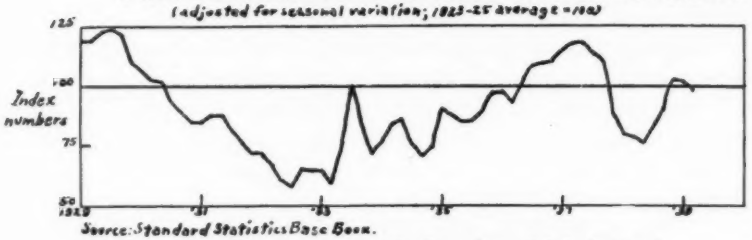
V. COMPARISON OF LOW-PRICED COMMON STOCKS WITH THE DOW-JONES INDUSTRIALS

Of the eight groups of low-priced stocks assumed to have been purchased at various dates, in the long run only three (i.e., from the date of selection to March 31, 1938) fared better than the Dow-Jones industrials. These three successful lists were selected: (*a*) before the 1929 crisis (Group I); (*b*) during a recession, one year before the 1932 low (Group II); and (*c*) at the depression low of 1932 (Group III). The surprising performance of Group I is probably explained partially by the fact that, at the absurdly high stock-market levels of 1929, the "blue chips" in the Dow-

[30] As measured either by a record of earnings on its common or by a relatively low percentage decline from a previous market high.

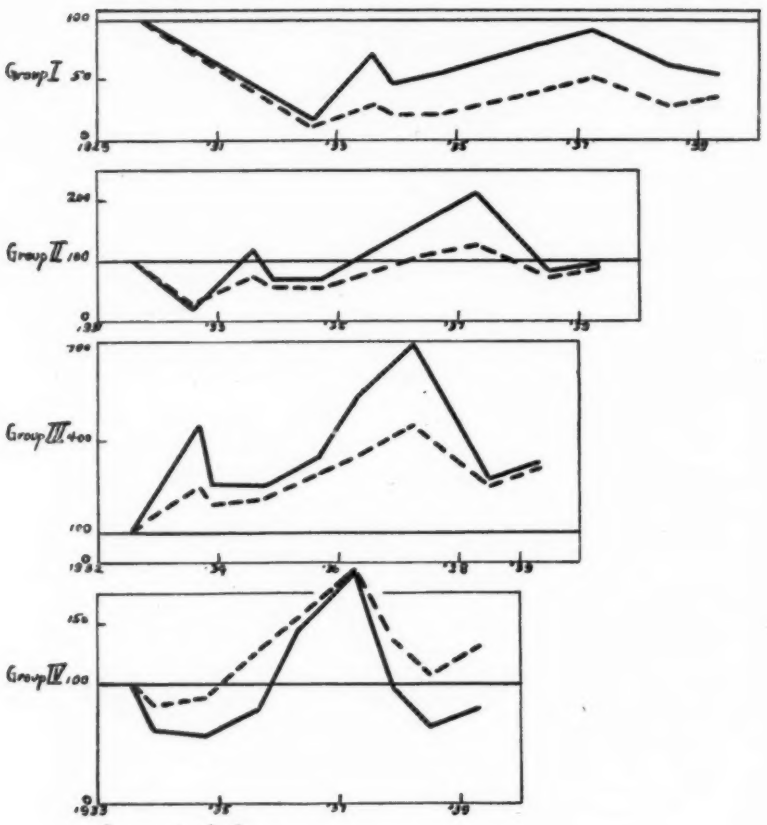
The Federal Reserve Board Index of Industrial Production.

(adjusted for seasonal variation; 1923-25 average = 100)



Source: Standard Statistics Base Book.

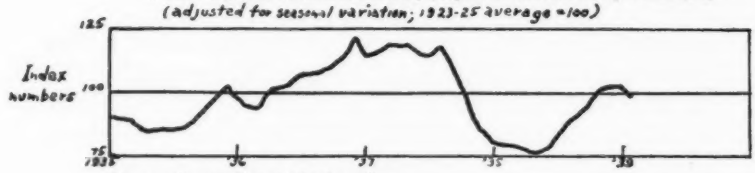
Market Price Fluctuations of the Dow-Jones 30 Industrials, and Various Groups of Low-Priced Stocks (date of selection = 100)



Low-priced stocks ——————

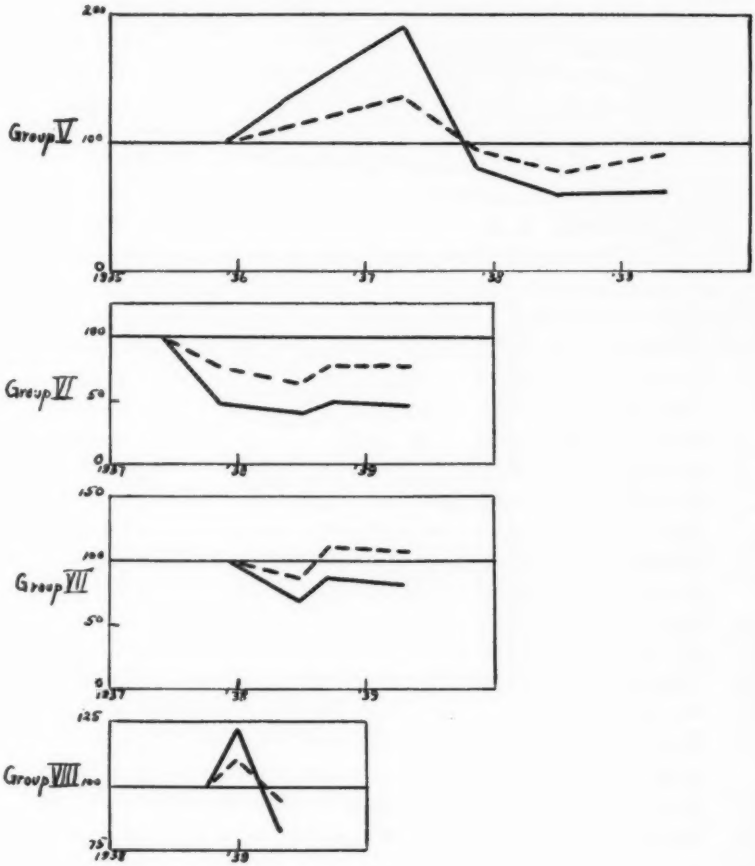
Dow-Jones Industrials — — — —

The Federal Reserve Board Index of Industrial Production
(adjusted for seasonal variation; 1923-25 average = 100)



Source: Standard Statistics Base Book.

Market Price Fluctuations of the Dow-Jones 30 Industrials and Various Groups of Low-Priced Stocks (date of selection = 100)



Jones industrials were more popular with the speculators than the unimpressive low-priced stocks. The consequent overvaluation of the Dow-Jones industrials at the 1929 high (relative to the valuation placed on the low-priced stocks) provided the background for the subsequent superiority of the low-priced group.

The superior performance of Groups II and III, selected during a severe recession, and at a depression low, respectively, is not startling. On the basis of previous studies made on low-priced stock this result could have been expected. A possible explanation of the good showings of Groups II and III revolves around the depressed conditions of the stock market of 1931–32. In this market, security prices were so low, and pessimism was so rampant, that numerous stocks of even well-established and sound corporations (which happened to show deficits during the years 1931 and 1932) fell below the ten-dollar-per-share level. Consequently the quality of the average corporation in either Group II or Group III was rather high. None of the other groups could boast of a similar list of first-rate bargains. Hence, the overwhelming superiority of performance of Groups II and III over the other groups. At or around a depression low, bargains in the low-priced range are due to the unusually high percentage of appreciation that low-priced stocks eventually enjoy.

Group IV (selected a year after the 1932 low) was chosen almost immediately before the stock-market high of 1933. This group both fell more in value and rose less than the higher-priced Dow-Jones stocks. The poor showing of Group V, chosen during the recovery phase of the business cycle, does not harmonize with Fritzemeier's conclusions. According to the latter, low-priced stocks, picked during a "bull" market, rise more, percentagewise, than the higher-priced stocks, and do not lose their superior gains in the subsequent recession. Group V, as it can be seen from both Table 3 and the graphs, rose more, but also fell more, percentagewise, than the Dow-Jones industrials. The same is true of Group VIII. That the low-priced stocks selected before the 1937 crisis (Group VI) fared poorly is not surprising, despite the behavior of Group I. In a "bear" market it is to be expected that speculators' interest in the low-priced stocks will slacken. There is no

similarity between the results of Groups II and VII, both selected during recessions. Group II, it will be remembered, was consistently ahead of the Dow-Jones list. Group VII, however, fell more and rose less than the Dow-Jones industrials. The better showing of Group II can, perhaps, be explained by the fact that, at the time of its selection, the recession had been in progress for a substantial period. As a result of the prolonged and intense depression of security prices, bargains were plentiful in the low-priced field. The relatively less intense recession preceding the selection of Group VII, however, did not produce bargain issues of the 1931 quality.

For the short-run periods, however, a little more can be said in favor of low-priced common stocks. Group I, for instance, during the year from July, 1932, to July, 1933, rose from 16.8 to 71.5—a rise of over 325 per cent. During the same period, the Dow-Jones list advanced only 160 per cent. During the same year (from the low of 1932 to the high of 1933), Group II made an advance of 345 per cent, as against the 160 per cent rise of the Dow-Jones industrials. In fact, three different groups of low-priced stocks (I, II, and III) all advanced considerably more, percentagewise, from the 1932 low to the 1933 high than did the Dow-Jones industrials. However, each of these three groups fell more, percentagewise, from the 1933 high to the low of the same year than did the Dow-Jones industrials. Thus, although the low-priced stocks advanced considerably more on the incline than did the higher-priced stocks, they also fell much more than did the Dow-Jones industrials on the decline. In Groups I, II, and III the upward movement was more than proportional to the downward movement, leaving the low-priced stocks with a net advantage over the Dow-Jones list. However, in Groups V and VIII the advance was less than proportional to the decline, leaving the low-priced lists with a net disadvantage with relation to the Dow-Jones group. Groups IV, VI, and VII, always inferior in performance to the Dow-Jones list, fell considerably percentagewise on the decline, and failed to compensate for the declines during the subsequent upswings of the market.

It is noteworthy that in the three groups of low-priced stocks

(I, II, and III) which fared better in the long run than the Dow-Jones industrials, it would have been most advantageous to sell the low-priced stocks at the first substantial stock-market peak following a severe low. From the 1933 high to the 1937 high, Groups I and III failed to appreciate in value as much as the Dow-Jones industrials. This would indicate that low-priced common stocks may be good for the rise but are inappropriate for long-term holding.

TABLE 4

MARKET-PRICE APPRECIATION OF THE DOW-JONES THIRTY INDUSTRIALS AND OF SEVERAL GROUPS OF LOW-PRICED STOCKS FROM 1932 LOW TO 1933 HIGH, AND FROM 1933 HIGH TO 1937 HIGH

GROUP AND DATE OF SELECTION	PER CENT INCREASE FROM 1932 LOW TO 1933 HIGH		PER CENT INCREASE FROM 1933 HIGH TO 1937 HIGH	
	Low-priced Stocks	Dow-Jones Industrials	Low-priced Stocks	Dow-Jones Industrials
I (8/30/29)	325	160	28	80
II (7/1/31)	335	160	83	80
III (7/1/32)	468	160	56	80

The marked advantage that the low-priced group of stocks enjoys on an upswing is dissipated in time, due to the fact that during a downward movement low-priced common stocks have a tendency to decline more, percentagewise, than do the high-priced stocks. It follows that, if the speculator is fortunately able to determine the peak of a business or stock-market high, he should liquidate his holdings of low-priced stocks. Timing the purchase and sale of any portfolio is a tremendously difficult problem.[31] In the field of low-priced common stocks, however, the reward for expertly timing purchases (e.g., at depression lows) becomes relatively nonexistent if it is not realized at or near a market high. The penalty for misjudging the market high in low-priced stocks is unusually great because of their singularly severe fall in value during a recession. Dealing in low-priced common

[31] See R. G. Busse, "The Timing Factor in the Purchase and Sale of Common Stocks," *Journal of Business of the University of Chicago*, January, 1939, pp. 1–23.

stocks, then, requires not only unusual diligence, but spot judgments. Unfortunately, no general rule regarding the timing of the sale of low-priced stocks can be formulated, since each business and market cycle is distinctive. Since greatest profits are usually realized at the first substantial stock-market high following a severe low,[32] profitable dealing in low-priced stocks is a relatively short-term proposition. The dangers attending attempts to determine market lows and highs are too obvious to require emphasis.

VI. CONCLUSIONS

Regarding the relative performance of various groups of stocks selected according to certain criteria, it was found that the criteria, the application of which produced relatively superior selections of stocks were: (*a*) 100 per cent capitalization by common stock; (*b*) a record of some earnings for the common stock for four out of the preceding five years; (*c*) absence of funded indebtedness maturing within three years. The criteria, the application of which produced relatively inferior selections of stocks were: (*a*) low ratio of common stock to total capitalization; (*b*) low gross revenues (indicating that the corporation is of small size). The application of each of the criteria to the eight groups of low-priced stocks yielded, on the whole, varying, unpredictable, and inconsistent results. This outcome merely substantiates the well-established belief that quantitative criteria alone cannot be mechanically applied to achieve consistently successful results.

With relation to the comparison of low-priced common stocks with the Dow-Jones industrials, it is noteworthy that:

1. Assuming that the eight lists of low-priced common stocks were sold on March 31, 1939, in only three out of the eight cases would the speculator in low-priced stocks have fared better than if he had dealt in the Dow-Jones industrials. These three lists were selected: (*a*) at the 1929 peak, immediately before the crisis; (*b*) during a severe recession, one year before the 1932 low; (*c*) at the depression low of 1932. Had the speculator entered the market at any of the other five dates selected subsequent to the

[32] See Table 4.

1932 low, and sold out on March 31, 1939, he would have had more success dealing in the Dow-Jones industrials than in active, low-priced common stocks.

2. During an upswing, the low-priced stocks, as a group, advanced considerably more, percentagewise, than the higher-priced Dow-Jones industrials. Similarly, during a recession, the low-priced stocks declined considerably more, percentagewise, than the Dow-Jones list. Although Groups I, II, and III rose more, proportionately, during the upswing than they declined during the succeeding recessions, leaving them with a net advantage over the Dow-Jones industrials, Groups V and VIII did not duplicate this performance. The latter two groups rose more than the Dow-Jones list during the upswing, but during the decline this initial advantage was more than erased. This resulted in giving the Dow-Jones industrials a net advantage over the low-priced stocks.

3. The tendency of low-priced stocks, in comparison with the Dow-Jones industrials, to advance substantially in value during an upswing necessitates, for successful trading, sale of these stocks at or near a stock-market high. If the timing of the selling is not fortunate the initial advantage gained by the low-priced stocks during the upswing is largely, if not completely, erased during the subsequent recessions. Consequently, dealing in low-priced stocks is a relatively short-term venture, subject to the hazards attending attempts to determine market highs and lows.

INDUSTRIAL LOAN OPERATIONS OF THE RECONSTRUCTION FINANCE CORPORATION AND THE FEDERAL RESERVE BANKS

ERNEST M. KLEMME[1]

INDUSTRIAL loan operations of the Federal Reserve banks and of the Reconstruction Finance Corporation have their origins rooted in basic features of the present era—an era which has witnessed the use of extraordinary governmental measures. As has been the case in each major depression period, there occurred a radical reduction of market values for securities and other forms of property, beginning abruptly in the autumn of 1929, and with fluctuations continuing since that time.

With unemployment increasing and bank closings continuing, it became obvious to the national government, during 1931, that some sort of aid from outside the customary financial and credit structure was necessary. The Reconstruction Finance Corporation Act, passed on January 22, 1932, was designed to aid the country as a whole by creating the Reconstruction Finance Corporation and by directing its lending power to financial institutions. The government felt that the greatest amount of good could be accomplished by supplying loans to financial institutions (banks, savings banks, trust companies, building and loan associations, insurance companies, mortgage loan companies, credit unions, etc.), on the theory that such loans would enable them to continue supplying "sound" enterprises of all sorts with funds with which to operate, on the basis of short-term loans.

By means of direct loans to railroads, to aid in their temporary financing when funds were unavailable through regular channels, the government hoped that the value of securities could be supported, thus preserving the solvency of the various kinds of financial institutions which were holding large amounts of railroad securities.[2] Such loans to banks and railroads were definitely felt

[1] Graduate student, School of Business, University of Chicago.

[2] Senator Fletcher, *Congressional Record*, January 9, 1932, p. 1569.

to be of an extraordinary, emergency character, to be continued only until business recovery would restore former methods of securing short-term and long-term funds.

The bill thus created a body with broad discretionary powers. The Corporation was set up to lend money, not to spend it, as is evidenced by the requirement that all loans be "fully and adequately secured." The expectation of Congress was that the Reconstruction Finance Corporation would not be called upon to suffer any net loss.[3]

Immediately following the enactment of the Reconstruction Finance Corporation Act, the Corporation began its program of aiding banks. However, all banks closed in March of 1933 and some 4,200 failed to reopen immediately. Obviously, the Corporation failed to prevent a collapse of the banking system. It did succeed, however, in bolstering depositor confidence and in stemming the tide of suspensions for nearly a year.

Following the bank holiday, the Corporation actively urged bankers to make loans; but the total volume of bank credit over the two-and-one-half-year period from January, 1932, to June, 1934, remained the same, and, in particular, commercial loans were not stimulated.[4] A major objective of the Reconstruction Finance Corporation Act of 1932 was the supplying of financial aid to the country as a whole through the medium of financial institutions. The want of appreciable results led to a growing feeling during 1933 that some agency outside the banking system must necessarily grant commercial and industrial loans. Banks throughout the country were plentifully supplied with excess reserves, having on hand during the latter part of October and throughout most of November more than $800,000,000 in excess of legal requirements.[5] The desire to grant loans for working-capital purposes was largely nullified by pressure to keep their institutions in a condition of the highest liquidity so that they

[3] Senator Walcott, *ibid.*, p. 1418.

[4] Cyril B. Upham and Edwin Lamke, *Closed and Distressed Banks* (Washington: The Brookings Institution, 1934), p. 226.

[5] *Federal Reserve Bulletin*, December, 1933, p. 732.

might be able to meet any exigencies. The rule of "safety first" resulted in an extremely conservative loan policy.[6]

During June, 1934, Congress recognized a more general unsatisfied demand for credit by small commercial and industrial businesses and gave to the Reconstruction Finance Corporation and the Federal Reserve banks powers designed to alleviate the situation.

The direct-loans powers of the Reconstruction Finance Corporation are contained in section 5*d* of the Reconstruction Finance Corporation Act, which gives the Corporation power

> . . . . to purchase the securities and obligations of, and to make loans to, any business enterprise directly or in cooperation with other lending institutions, through agreements to participate or by the purchase of participations or otherwise. . . . .

The law defines a number of governing conditions: (1) Capital and credit at prevailing rates for the type of loan applied for must not be otherwise available. (2) Adequate security must be provided. (3) The applicant must be solvent. (4) Continued or increased employment must be proved. (5) The amount of the loan must not exceed $500,000. (6) Term of the loan must not exceed five years.

There have been two amendments of section 5*d* of the Reconstruction Finance Corporation Act which have affected the loan policy of the Corporation. The amendment of January 31, 1935, set 1945 as the final date for all maturities,[7] while an amendment of April 13, 1938, further broadened the scope of the Corporation's activities and removed them from limitation by permitting it to set maturities at its own judgment.[8]

Reconstruction Finance Corporation loans are made for the purchase of labor and materials, for new business enterprises and expansion of existing firms, if it can be shown that such loans will be sound from an economic as well as a credit point of view, for the purchase of new machinery, or for the financing of industrial construction.

[6] Representative Ludlow, *Hearings before Subcommittee of Committee on Banking and Currency, February, 1934*, p. 2.

[7] 49 U.S. Stats. at Large 1.

[8] 52 U.S. Stats. at Large 212, sec. 5*d*.

Subsection (*a*) of section 13*b* of the Federal Reserve Act grants the Federal Reserve banks power to make loans to, or purchase obligations of, an established industrial or commercial business located in the districts. The law defines six regulating conditions: (1) The Federal Reserve bank must be satisfied that such established industrial or commercial business is unable to obtain requisite financial assistance on a reasonable basis from the usual sources. (2) The circumstances must be exceptional. (3) Such loans by Federal Reserve banks will be on authority from the Federal Reserve Board. (4) Purpose of the loans will be to provide established industrial or commercial business with working capital. (5) Loans will be granted on a reasonable and sound basis. (6) Maturities must not exceed five years.

Funds for these loans are to be provided as follows: the Federal Reserve banks are authorized to devote their entire surplus of approximately $139,000,000 to such loans, and in the discretion of the Secretary of the Treasury, an additional $140,000,000 to be furnished by the Treasury. The Reconstruction Finance Corporation is authorized to lend up to $300,000,000 to this class of borrowers.

Subsequent to the passage of this legislation, two studies were conducted in an attempt to ascertain the actual status of credit difficulties of small businessmen. The earlier study was conducted by the Bureau of the Census, during July of 1934, at the request of the Business Advisory Council for the Department of Commerce.[9] This inquiry was conducted on a nation-wide basis. Of the 6,158 returned questionnaires judged suitable for tabulation, 71 per cent were classified as borrowers of capital. Of the 4,387 borrowing, 45 per cent reported credit difficulties. This study also unearthed the significant fact that, while there apparently was no relationship between kind of industry or locality and difficulty in borrowing, there was a relation between size of concern and difficulty in borrowing—the smaller concerns experiencing greater difficulty in securing adequate credit than those of a larger size.

The latter of these studies was conducted in September, 1934,

[9] Bureau of the Census, *Survey of Reports of Credit and Capital Difficulties* (Washington: Government Printing Office, 1935).

by Charles O. Hardy and Jacob Viner, in the Seventh Federal Reserve District.[10] This study analyzed banks' refusals to make commercial or industrial loans during the period from the bank holiday to September 1, 1934. In each of 1,788 cases the bank and the applicant were interviewed. The investigators classified the cases according to merit—that is, the nature of the credit risk; evaluation was based upon financial position, earnings record, the bank's statement of reasons for refusal, and the quality of the management in so far as information bearing upon it was available. Of the total number of cases, 374 were rated as "good." The conclusion was reached that there existed at the time (September, 1934) a genuine unsatisfied demand for credit on the part of solvent borrowers, many of whom could make "sound" use of working capital. While this unsatisfied demand for credit was discovered to be somewhat smaller than was popularly believed to be the case, it was large enough to be a significant factor in retarding business recovery. These two studies leave little doubt that the financial needs of "sound" firms were not being met satisfactorily.

THE MAGNITUDE OF LOAN OPERATIONS

The Reconstruction Finance Corporation.—Up to February 2, 1939, 7,371 loans had been authorized to business enterprises, aggregating $447,324,578.[11] These loans have been classified by industries, by states, by quarters, and by size of loan. These classifications present breakdowns of totals up to December 31, 1938, only.

Table 1[12] presents a classification according to number of borrowers, amounts authorized and amounts disbursed, by kind of industry. The table presents total amounts to December 31, 1938. "Amount authorized" refers to the total amount of credit made available by the Corporation to the borrowers. "Amount Dis-

[10] Charles O. Hardy and Jacob Viner, *Report on the Availability of Bank Credit in the Seventh Federal Reserve District* (Washington: Government Printing Office, 1935).

[11] Jesse H. Jones, *Reconstruction Finance Corporation Seven-Year Report* (Washington, D.C., 1939), p. 9.

[12] Figures in these four tables are taken from Reconstruction Finance Corporation quarterly reports.

bursed" refers to the total amounts actually used by the borrowers. As seen in the table, loans have been made to a wide variety of industries; manufacturing received more advances than other categories of industry; and among the branches of industry, food, textiles, lumber, paper, iron, and steel are seen to have been the largest borrowers.

TABLE 1

TOTAL AUTHORIZATIONS TO BUSINESS ENTERPRISES TO DECEMBER 31, 1938, BY INDUSTRIES

(Amounts in Thousands of Dollars)

Industry	Number of Enterprises	Amount Authorized	Amount Disbursed
Manufacturing:			
Food and kindred products	737	$ 42,102	$ 12,694
Textiles	530	56,417	31,205
Lumber	580	36,038	20,646
Paper	100	26,153	10,015
Printing	222	4,144	1,785
Chemical	144	6,246	3,967
Rubber	25	2,068	1,014
Leather	76	5,143	2,274
Stone, clay, glass	277	18,437	9,816
Iron, steel	266	27,735	12,951
Nonferrous metals	159	8,174	4,305
Machinery	303	19,640	9,213
Transportation equipment	92	17,085	6,121
Wholesale trade	361	14,377	4,663
Retail trade	833	10,760	5,885
Mining	97	15,006	6,343
Contracting	92	2,876	1,361
Laundries	124	1,819	1,159
Not classified	1,145	1,662	562
Grand total	6,163	$384,219	$156,974

Table 2 presents a classification of total amounts to December 31, 1938, for each state. There are columns for number of authorizations, amount authorized, amount disbursed, and amount outstanding as of December 31, 1938. California, Illinois, Michigan, Missouri, New Jersey, New York, Ohio, and Pennsylvania have made the largest authorizations. The above-named states thus are seen to have experienced the largest demand for loans under section 5*d*, since there has been no policy of allocating the Corporation's funds other than according to the demand for loans.

TABLE 2

TOTAL AUTHORIZATIONS TO BUSINESS ENTERPRISES TO DECEMBER 31, 1938, BY STATES

(Amounts in Thousands of Dollars)

State	Number of Authorizations	Amount Authorized	Amount Disbursed	Amount Outstanding Dec. 30, 1938
Alabama	108	$ 2,820	$ 822	$ 698
Arizona	14	556	65	40
Arkansas	108	6,501	5,142	4,245
California	142	16,713	6,526	5,890
Colorado	61	1,376	450	356
Connecticut	73	5,073	2,829	1,802
Delaware	9	370	332	24
District of Columbia	29	533	184	119
Florida	235	4,561	3,052	2,517
Georgia	436	11,201	6,213	3,816
Idaho	40	909	736	513
Illinois	261	17,223	10,354	7,226
Indiana	120	4,634	2,420	1,813
Iowa	46	1,694	1,115	748
Kansas	117	2,066	1,013	595
Kentucky	137	3,762	1,810	1,291
Louisiana	48	1,058	563	394
Maine	16	302	184	97
Maryland	86	4,431	2,419	1,412
Massachusetts	222	11,125	5,294	3,653
Michigan	219	20,047	10,585	6,745
Minnesota	121	2,538	1,086	729
Mississippi	65	1,194	344	243
Missouri	180	11,187	5,282	3,471
Montana	48	612	222	112
Nebraska	67	1,339	601	439
Nevada	3	102	71	.....
New Hampshire	11	1,674	890	688
New Jersey	238	19,662	10,674	8,761
New Mexico	24	691	471	352
New York	682	29,217	13,542	8,772
North Carolina	131	6,893	4,367	3,033
North Dakota	21	712	555	517
Ohio	280	16,248	8,750	6,414
Oklahoma	45	1,053	376	266
Oregon	128	7,542	4,941	2,770
Pennsylvania	371	27,287	15,280	12,223
Rhode Island	26	3,540	2,984	2,593
South Carolina	56	3,257	665	226
South Dakota	25	123	27	16
Tennessee	147	7,199	3,857	2,704
Texas	214	7,672	1,885	1,177
Utah	26	1,090	550	451
Vermont	12	388	246	148
Virginia	74	3,452	930	439
Washington	1,207	8,892	4,626	3,068
West Virginia	60	2,321	865	555
Wisconsin	91	6,838	3,496	2,835
Wyoming	9	80	30	23
Alaska	1	11	30	23
Hawaii	1	200	.....	.....
Puerto Rico	19	1,038	835	725
Total	6,190	$291,007	$150,438	$107,747

Table 3 presents loans classified according to three-month periods, beginning with the fourth quarter of 1934 and continuing through the fourth quarter of 1938. The three columns contain listings of amounts authorized, amounts disbursed, and amounts outstanding at the end of each quarter. Of special interest are the

TABLE 3

TOTAL AUTHORIZATIONS TO BUSINESS ENTERPRISES TO DECEMBER 31, 1938, BY QUARTERS

(Amounts in Thousands of Dollars)

Quarter		Amount Authorized	Amount Disbursed	Amount Outstanding at End of Quarter
1934	Sept.	$11,425	$ 1,916	$ 1,916
	Dec.	16,167	4,826	6,626
1935	Mar.	14,673	6,274	12,738
	June	22,147	9,517	21,661
	Sept.	23,552	11,227	32,225
	Dec.	12,664	8,663	39,825
1936	Mar.	12,257	10,004	48,209
	June	9,984	6,148	52,511
	Sept.	12,083	7,106	57,580
	Dec.	7,939	9,037	63,363
1937	Mar.	7,700	3,879	63,375
	June	4,442	9,442	70,467
	Sept.	4,483	5,082	73,015
	Dec.	2,851	4,884	74,548
1938	Mar.	4,517	1,410	72,589
	June	33,370	6,780	76,093
	Sept.	55,931	20,008	91,517
	Dec.	34,101	24,261	107,747

large authorizations during the last three quarters of 1938; these authorizations followed a flood of new applications which could be considered by the Corporation after the passage of the April, 1938, amendment which permitted the Corporation to grant loans of whatever maturity it should judge best. That a great number of business enterprises could make use of loans upon such a basis (maturities up to ten years or more) and were unable to negotiate them at the customary sources is evidenced by the figures in Table 3.

Table 4 classifies total authorizations to business enterprises to December 31, 1938, according to size of loan. The number of loans in each size group and the amount authorized in each group is given, together with the percentage relationship of each item to the total. This table reveals that 70.3 per cent of the total number of loans granted to business enterprises were loans of $25,000 or less. As this classification demonstrates, "small business" needs were being taken care of.

TABLE 4

TOTAL AUTHORIZATIONS TO BUSINESS ENTERPRISES TO DECEMBER 31, 1938, BY SIZE OF LOAN

(Amounts in Thousands of Dollars)

Size of Loans	Number of Loans	Per Cent of Total	Amount Authorized	Per Cent of Total
$5 and under	2,641	36.9	$ 5,702	1.5
$5 to $10, incl.	1,108	15.5	8,983	2.3
$10 to $25, incl.	1,350	18.8	24,644	6.4
$25 to $50, incl.	811	11.3	32,025	8.3
$50 to $100, incl.	629	8.8	49,063	12.8
$100 to $200, incl.	326	4.5	49,846	13.0
$200 to $500, incl.	222	5.1	71,770	18.7
$500 to $1,000, incl.	49	.7	39,746	10.3
Over $1,000	30	.4	102,441	26.7
Total	7,166	100.0	$384,219	100.0

The Corporation's interest rate to business generally has been 5 per cent, but, according to public announcement by the chairman, most rates have been reduced to 4 per cent since April 1, 1939. However, no official action has confirmed this announcement.

Insolvencies among business enterprises which were granted loans, with subsequent losses to the Corporation, are of especial interest in an evaluation of the program of this agency. At date of February 2, 1939, 46 loans (representing an aggregate amount of $3,009,192) have been foreclosed and the security reduced to possession. Properties securing three of these loans, which amounted to $234,905, have been sold at a net loss to the Corporation of $31,003, or 13.2 per cent of the loan. Loans to business

aggregating $21,427,000 are in default, and 60 loans, aggregating $3,588,000, are in process of foreclosure, usually after several extensions and supplemental loans.[13]

The Corporation follows the policy of entering a piece of foreclosed property upon the books at the amount of the loan, and when it is sold the loss is taken, if there is any.[14] At the present time, very little foreclosed property has been sold, so that a very small loss has been taken.

Such methods make impossible any accurate estimate of losses at the present time. Losses on loans to business are expected to be somewhat higher than from other classes of the Corporation's loans.[15] When foreclosed property is sold, any loss will come out of the surplus of $200,000,000 which has been accumulated, and this is felt to be more than adequate to cover any losses, on any class of loan.

The Federal Reserve banks.—Loans to business by the Federal Reserve banks have been classified according to amounts outstanding by quarters and by districts, rates charged by each bank by quarters, maturities of loans, and total authorizations and amounts outstanding by quarters. These totals are available up to March 31, 1939.[16]

Table 5 lists amounts outstanding by quarters beginning with the third quarter of 1934 and continuing through the first quarter of 1939. These quarterly amounts outstanding are shown in total and for each of the twelve Federal Reserve banks. As shown by the table, the Federal Reserve banks of New York, Boston, Philadelphia, and Richmond have been the largest lenders. This table also reveals that lending activities have gradually decreased, in most districts, since the middle of 1936.

Table 6 lists percentage rates charged by each Federal Reserve bank on industrial advances. The data are presented from the

[13] Jones, *Reconstruction Finance Corporation Seven-Year Report* (Washington, D.C., 1939), p. 10.

[14] Statement of Jesse H. Jones in *Hearings before the Committee on Banking and Currency, United States Senate, February 14, 1939*, p. 2.

[15] Jones, *Reconstruction Finance Corporation Seven-Year Report* (Washington, D.C., 1939), p. 10.

[16] Figures in these tables are taken from copies of the *Federal Reserve Bulletin*.

TABLE 5

INDUSTRIAL ADVANCES OF EACH FEDERAL RESERVE BANK, IN THOUSANDS OF DOLLARS OUTSTANDING AT END OF EACH QUARTER

Quarter		Total	Boston	New York	Philadelphia	Cleveland	Richmond	Atlanta	Chicago	St. Louis	Minneapolis	Kansas City	Dallas	San Francisco
1934	Sept....	$ 2,178	$ 3	$ 138	$ 136	$ 95	$ 445	$ 335	$ 105	$236	$ 442	$ 165	$ 73	.....
	Dec.....	14,501	1,775	815	3,236	932	1,540	847	921	419	1,752	433	1,045	$ 588
1935	Mar....	21,173	2,146	1,876	3,786	1,350	3,535	1,085	1,603	490	1,957	969	1,699	687
	June....	27,638	2,157	6,790	3,532	1,673	4,382	1,091	1,938	482	2,052	1,142	1,833	666
	Sept....	30,166	2,854	7,320	4,358	1,763	4,650	1,038	1,919	455	2,160	1,110	1,820	819
	Dec.....	32,493	2,941	7,741	6,768	1,784	4,460	928	1,853	392	1,589	1,146	1,780	1,111
1936	Mar....	30,409	2,910	7,686	5,441	1,552	3,829	865	2,139	652	1,466	1,176	1,696	1,107
	June....	29,878	2,914	7,336	5,148	1,757	3,633	764	2,106	655	1,339	1,009	1,649	1,678
	Sept....	28,145	3,607	6,360	5,091	1,423	3,654	568	1,638	552	1,168	887	1,506	1,631
	Dec.....	24,768	2,688	6,026	4,706	1,214	2,684	400	1,435	424	1,070	794	1,334	1,823
1937	Mar....	22,338	2,786	5,477	4,286	1,286	2,221	394	1,049	342	802	727	1,250	1,918
	June....	22,152	3,200	5,897	3,954	916	2,007	200	913	324	776	638	1,249	2,078
	Sept....	20,598	2,990	5,377	3,721	820	1,920	174	807	250	717	579	1,159	2,084
	Dec.....	18,291	2,872	4,577	3,645	762	1,773	128	705	237	638	464	966	1,624
1938	Mar....	17,177	2,609	4,320	3,275	944	1,790	122	682	154	555	467	912	1,347
	June....	16,590	2,381	4,267	2,947	851	1,537	121	559	137	1,185	433	827	1,345
	Sept....	15,677	2,365	3,678	3,269	671	1,467	118	437	44	1,098	420	830	1,280
	Dec.....	15,688	2,004	3,884	3,121	619	1,481	825	415	21	866	268	736	1,348
1939	Mar....	14,005	1,797	3,?34	2,882	385	1,189	819	459	6	857	215	617	945

fourth quarter of 1934 through the second quarter of 1939. A striking feature of this table is the relative lack of fluctuation in the rates charged; some districts have apparently followed a more flexible policy concerning rates than have others; for example, Boston charges from $3\frac{1}{2}$ to 6 per cent, Cleveland from $4\frac{1}{2}$ to 6 per cent, while Richmond and Minneapolis have never deviated from a 6 per cent rate on industrial advances, and only recently did Atlanta broaden its policy somewhat.

Table 7 presents the total amount of advances outstanding at the end of each quarter, classified according to date of maturity. Through 1936, any maturity over six months was put in one classification so that the table means less for that period than do the figures beginning with 1937, when the following classifications were added: six months to one year, one to two years, and two to five years. The heaviest concentration is seen to be in the one-to-two-year and two-to-five-year loans.

Table 8 presents total amounts authorized by the Federal Reserve banks during each quarter and total amounts outstanding at the end of each quarter, from the fourth quarter of 1934 through the second quarter of 1939.

On December 31, 1938, the Federal Reserve banks had charged off determined losses aggregating $160,000. Reserves set aside to take care of estimated losses amounted to $1,865,000. At the present time the Federal Reserve banks are carrying about $2,300,000 of advances that are past due three months or more and $1,300,000 of miscellaneous assets they have acquired in connection with the liquidation of defaulted obligations.

APPRAISAL

Competition for industrial loans.—At present and for the past several years at least three major types of financial institutions have been operating in the field of commercial and industrial loans. An inquiry naturally develops as to whether or not their activities overlap. The question also arises whether or not such overlapping may result in actual competition for commercial and industrial loans as between the banks and the two governmental agencies, or even between the governmental agencies themselves.

TABLE 6

RATES ON INDUSTRIAL ADVANCES PER CENT PER ANNUM

Quarter		Boston	New York	Philadelphia	Cleveland	Richmond	Atlanta	Chicago	St. Louis	Minneapolis	Kansas City	Dallas	San Francisco
1934	Sept.												
	Dec.	4–6	4–6	4–6	6	6	6	5–6	5½	6	6	5–6	5–6
1935	Mar.	4–6	4–6	4–6	6	6	6	5–6	5½	6	4–6	5–6	5–6
	June	3½–6	4–6	4–6	4½–6	6	6	5–6	5½	6	4–6	5–6	5–6
	Sept.	3½–6	4–6	4–6	4½–6	6	6	5–6	5½	6	4–6	5–6	5–6
	Dec.	3½–6	4–6	4–6	4½–6	6	6	5–6	5½	6	4–6	5–6	5–6
1936	Mar.	3½–6	4–6	4–6	4½–6	6	6	5–6	5½	6	4–6	5–6	5–6
	June	3½–6	4–6	4–6	4½–6	6	6	5–6	5½	6	4–6	5–6	5–6
	Sept.	3½–6	4–6	4–6	4½–6	6	6	5–6	5½	6	4–6	5–6	5–6
	Dec.	3½–6	4–6	4–6	4½–6	6	6	5–6	5½	6	4–6	5–6	5–6
1937	Mar.	3½–6	4–6	4–6	4½–6	6	6	5–6	4–5½	6	4–6	5–6	5–6
	June	3½–6	4–6	4–6	4½–6	6	6	5–6	4–5½	6	4–6	5–6	5–6
	Sept.	3½–6	4–6	4–6	4½–6	6	6	5–6	4–5½	6	4–6	5–6	5–6
	Dec.	3½–6	4–6	4–6	4½–6	6	6	5–6	4–5½	6	4–6	5–6	5–6
1938	Mar.	3½–6	4–6	4–6	4½–6	6	6	5–6	4–5½	6	4–6	5–6	5–6
	June	3½–6	4–6	4–6	4½–6	6	6	5–6	4–5½	6	4–6	5–6	5–6
	Sept.	3½–6	4–6	4–6	4½–6	6	5–6	5–6	4–5½	6	4–6	5–6	5–6
	Dec.	3½–6	4–6	4–6	4½–6	6	5–6	5–6	4–5½	6	4–6	5–6	5–6
1939	Mar.	3½–6	4–6	4–6	4½–6	6	5–6	5–6	4–5½	6	4–6	5–6	5–6
	June	3½–6	4–6	4–6	4½–6	6	5–6	5–6	4–5½	6	4–6	5–6	5–6

TABLE 7

MATURITY DISTRIBUTION OF INDUSTRIAL ADVANCES TO JUNE, 1939, BY QUARTERS

(Amounts in Thousands of Dollars)

Quarter		Total	Within 15 Days	16–30 Days	31–60 Days	61–90 Days	91 Days to 6 Months	Over 6 Months*	1 Year to 2 Years†	2 Years to 5 Years†
1934	Sept.	$ 1,961	$ 18	$ 18	$ 82	$ 46	$ 358	$ 1,439	.....	.....
	Dec.	13,589	32	71	211	865	1,636	10,774	.....	.....
1935	Mar.	20,785	508	652	1,118	501	1,069	16,937	.....	.....
	June	27,518	1,203	183	305	525	2,794	22,508	.....	.....
	Sept.	30,132	2,364	572	464	738	2,255	23,739	.....	.....
	Dec.	32,493	1,674	259	950	493	1,583	27,015	.....	.....
1936	Mar.	30,501	1,676	161	479	486	1,743	25,956	.....	.....
	June	29,936	1,631	272	663	599	2,297	24,474	.....	.....
	Sept.	28,145	1,618	312	551	812	1,976	22,879	.....	.....
	Dec.	24,768	1,167	260	669	669	1,676	20,327	.....	.....
1937	Mar.	22,328	1,285	137	400	553	1,947	3,681	$5,447	$8,888
	June	22,152	849	246	721	813	1,940	3,763	5,251	8,569
	Sept.	20,698	1,179	190	572	696	1,898	3,117	5,801	7,145
	Dec.	18,291	1,334	302	577	438	1,431	3,490	5,502	5,217
1938	Mar.	17,177	1,777	64	343	640	1,717	3,312	6,723	2,601
	June	16,590	1,239	171	286	934	2,146	2,927	6,636	2,251
	Sept.	15,677	1,303	108	743	663	1,813	3,381	5,133	2,633
	Dec.	15,686	1,784	579	596	387	1,290	3,891	4,423	2,738
1939	Mar.	14,005	2,405	160	267	229	2,226	4,718	2,266	1,934
	June	.....	.....	.....	.....	.....	.....	.....	.....	.....

*Figures in this column from 1937 on are for 6 months to 1 year.

†Prior to 1937 all maturities of 6 months or more were lumped in one classification.

Closely connected with this problem—indeed, an integral part of it—are the criteria used by the two government agencies in judging whether or not credit to the firm is unavailable at the commercial bank.[17] The first indication that funds are unavailable

TABLE 8

AMOUNTS AUTHORIZED DURING EACH QUARTER AND AMOUNTS OUTSTANDING AT END OF EACH QUARTER

(Amounts in Thousands of Dollars)

Quarter		Amount Authorized	Amount Outstanding
1934	Dec.	$ 7,432	$14,301
1935	Mar.	26,907	21,175
	June	12,337	27,638
	Sept.	26,682	30,166
	Dec.	9,460	32,493
1936	Mar.	4,385	30,409
	June	4,038	29,878
	Sept.	4,018	28,145
	Dec.	2,470	24,768
1937	Mar.	1,176	22,338
	June	4,213	22,152
	Sept.	966	20,598
	Dec.	4,257	18,291
1938	Mar.	3,937	17,177
	June	6,240	16,590
	Sept.	7,222	15,677
	Dec.	6,633	15,688
1939	Mar.	2,882	14,005

to the firm consists of the application to either of the agencies, accompanied by the name of the bank or banks which refused the loan.

Such evidence is not accepted at face value, however, and an effort is made to discover reasons why the loan was so refused. Assuming the application is of an acceptable nature to the Reconstruction Finance Corporation or the Federal Reserve bank,

[17] Much of the material in this section was obtained by personal interview at the Chicago Regional Office of the Reconstruction Finance Corporation, and while specifically applicable to that region is no doubt sufficiently valid to be used in a discussion of the national situation.

wherever possible the bank that originally refused the loan is urged to take part of the loan—that is, to participate in the loan. Care is exercised so that in no instance will the agency grant a loan which might wholly have been taken up by a bank. There is no competition in the matter of interest rates; for in cases of participation agreements the bank, for example, may charge a lower rate on its portion than the Corporation. Interest rates of the two governmental agencies are somewhat higher than those charged by commercial banks on business loans. This difference in rates is a further safeguard against competition between the government agencies and the banks. Any further possible competition, between the agencies themselves, tends to be eliminated by the type of loan each organization is empowered to grant. According to the law, Federal Reserve banks may grant loans for working capital purposes only, while the Reconstruction Finance Corporation may, in addition, grant loans for new businesses, expansion of existing business operations, plant and equipment, and even for the reduction of existing debt. A great many applications will, because of their very nature, avoid the offices of a Federal Reserve bank and seek these of the Reconstruction Finance Corporation. Competition as to loans for working capital is extremely unlikely since the two agencies set up similar requirements and charge equivalent rates of interest.

The cost of credit.—Member bank rates charged on commercial loans have been at the lowest level on record for the last two years, and have averaged about $1\frac{3}{4}$ per cent in New York City, about $2\frac{1}{2}$ per cent in seven other northern and eastern cities, and about $3\frac{1}{2}$ per cent in eleven southern and western cities.[18] Rates charged by the Reconstruction Finance Corporation and the Federal Reserve banks have been consistently higher than those charged by member banks, but without a doubt this difference can be partially explained by a difference in the risk assumed in each case. If it is true that the commercial banks are contracting only the safest of the industrial loans, and that the governmental agencies are making advances with less assurance of their being repaid, then the higher interest charges of the Corporation and

[18] *Federal Reserve Bulletin*, January, 1939, p. 17.

the Federal Reserve banks have a justification. Such rates can further be defended as a method of avoiding competition between the governmental agencies and the commercial banks. The Federal Reserve banks in particular follow this course of action to make sure that they do not encroach upon the territory of the member banks. In addition, the rates set by the governmental agencies tend to prohibit marginal firms from applying for loans.

Capitalization structure.—The banking structure is set up so as to care adequately for the needs of business when such needs consist largely of short-term loans. Longer-term funds should be obtained through the capital markets. Events of the 1930's have so changed conditions that the banking structure can be said to be somewhat out of touch with business needs. Many firms need funds for periods of ten years or more in order to maintain or expand employment. Banks avoid loans of such duration. Capital markets absorb new issues less readily than ever before, especially in the case of those new issues put out by smaller enterprises or enterprises with a rather shaky financial record for the past several years.

Jesse Jones, chairman of the Reconstruction Finance Corporation, believes that bankers have shifted entirely too far away from giving proper consideration to the record and reputation of the borrower. Too much attention is paid to the security offered and to how quickly it could be converted into cash when the borrower fails to pay.[19] He further charges the bankers with a lack of appreciation of the public demand for a more sympathetic attitude toward businesses that need credit—the borderline cases that, due to years of depression, are no longer class A risks, but that are important to our whole economy.[20]

The Reconstruction Finance Corporation has endeavored for several years to enlist greater bank co-operation in making loans. Several times the agency has written every bank in the United States requesting that they make a greater effort at expanding commercial loans. In the opinion of Jesse Jones, the attitude of

[19] Jesse H. Jones, *Address before the American Bankers' Association, November 15, 1938* (Houston, 1938), p. 9.

[20] *Ibid.*, p. 13.

the bank examiner has been a major factor in continued unwillingness of banks to expand their loan policies.[21] The Reconstruction Finance Corporation has been pressing for more liberal policies on the part of banks; the examiners have worked in the opposite direction. When in February of 1938 the Controller of the Currency, state banking departments, and the Board of Governors of the Federal Reserve System agreed upon a uniform method of treating loans and investments by banks, the means of alleviation of "undesirable" banking policies were brought into existence, for banks could then make long-time loans, term loans, business loans, and capital loans without running the risk of the loan being criticized by the examiner.[22]

The Reconstruction Finance Corporation has developed yet another plan designed to stimulate loans to business by banks; the plan gives the banks government guaranteed loans bearing from 3 to 5 per cent interest which the bank can cash at any time whether the loan is due or not.[23] Under the terms of this plan, banks have agreed to take participations in more than two thousand loans, their share aggregating $71,000,000. Response to this plan has not equaled expectations.[24]

These various schemes for encouraging banks to expand their policies with respect to commercial and industrial loans have produced some results, but the demand upon the Corporation for funds has increased in recent months rather than decreased. Unless further action is taken by banks along lines discussed in this chapter some further plan must necessarily be inaugurated if the activity of the Corporation and the Federal Reserve banks in this field of loans is to diminish or cease.

Thus, many small businesses find themselves with a need for funds. Yet banks deny them loans, and the securities markets are, for all practical purposes, closed to them. The Reconstruction Finance Corporation has been able to supply funds for a number of purposes for varying periods of time. To this extent, there would appear to be a trend away from financing through securities.

[21] Jesse H. Jones, *Statement before Banking and Currency Committee, U.S. Senate, June 29, 1939*, p. 4.

[22] *Ibid., February 14, 1939*, p. 6. [23] *Ibid.*, p. 3. [24] *Ibid.*

Conclusion.—The work that has been done by the Reconstruction Finance Corporation and the Federal Reserve banks in the field of loans to commercial and industrial businesses has been necessary and, no doubt, of a valuable character. The need for such loans by agencies outside the banking structure cannot be doubted when the large number of applications for loans which have been refused by banks is considered. Approximately two-thirds of such applications are found to fall within the requirement that all advances be reasonably secured.

Not only was there a legitimate unsatisfied demand for credit during 1934 when provisions for it were made, but this demand has continued to the present time. This demand for funds shows no sign of an immediate decrease. The activity of the Reconstruction Finance Corporation and the Federal Reserve banks is not likely to cease, at least for the immediate future.

Generally speaking, there are two ways in which the business-loan activities of these two agencies will become unnecessary. The first entails the return of business conditions to "normal"—a state of affairs which was supposed to have existed around 1926. If such a change should occur, business would probably find its long-term needs supplied adequately by securities markets; banks would probably be able to supply adequately short-term funds based on collateral perhaps more acceptable than that which has been offered during recent years.

The other eventuality is that somehow the banks may take over the functions now being performed by government agencies. The first possibility represents an adjustment of economic policy to fit the present banking structure; this latter course represents an adjustment of the banking structure to fit changed concepts of the national economic structure.

There are two schools of thought in regard to the proper scope of commercial banking at the present time. As a representative of one school, Chairman Jesse Jones of the Reconstruction Finance Corporation maintains:

> Many industrial loans are good that would not necessarily be desirable by a bank, because payment of the loan will depend too usually upon the profitable operation of the borrower. This is the type of loan that we would

like the cooperation of the banks in making, where employment will be provided and the security will reasonably assure ultimate liquidation of the loan. Our bank laws permit such loans, and bank examiners need not and should not criticize or call special attention to them.[25]

On the other hand, Leo T. Crowley, chairman of the Board of Directors of the Federal Deposit Insurance Corporation, asserts:

Long-term equity financing is quite inconsistent with the short-term nature of the banks' obligations. The very order of the bankers' responsibilities requires consideration, first, of his depositors' rights, second, of his stockholders' interests, and only then of his borrowers. . . . . The belief that bank supervisors are unwilling to let bankers assume legitimate risks is quite erroneous. Those holding that belief in the present instance lose sight of the fact that no risk can be considered legitimate that endangers the safety of the depositors' funds.[26]

Each person has in mind a different concept of what constitutes a "safe" loan. Mr. Jones's criterion is concerned with "ultimate liquidation" while Mr. Crowley's test is the quick repayment out of current profits. Mr. Jones represents that school of thought which maintains that the banking structure is somewhat out of touch with business needs. Mr. Crowley and his cohorts would have the banking structure maintain its present conservative form regardless of financial needs of borrowers. The test of these opposing theories will come only when it is known what percentage of these loans granted by the Reconstruction Finance Corporation and the Federal Reserve banks have involved losses. At the present time it is impossible to tell how many of these loans will eventually be bad. If an extremely low loss ratio results, and the opportunity of granting similar loans continues, the banks should enter this field. If later experience indicates that too large a proportion of losses is involved, a continuance of an unchanged policy would involve the question of losses absorbed by the government. Should the government assume losses on loans made to a section of business? There are those who would answer that since the national government has been making vast expenditures for a wide variety of purposes, it would not be of great moment if

[25] *Hearings before the Committee on Banking and Currency, House of Representatives, April 18, 1938*, p. 8.

[26] *Ibid.*

a certain amount of additional funds be doled out, in effect, to commercial and industrial business. To them it can only be said that the purpose of the loans is the rehabilitation of component parts of our economic structure, and that in so far as this purpose fails to be translated into actuality, the granting of such advances loses justification and should be stopped.

In the case of a large loss ratio, accompanied by continued unwillingness on the part of banks to grant even the safest of this type of loan, the requirements of the agencies should be raised so as to permit the granting of loans to only those firms most likely to repay, and thus eliminate advances to many marginal enterprises.

THE LOCATION OF THE SOUTH WATER WHOLESALE FRUIT AND VEGETABLE MARKET IN CHICAGO*

E. A. DUDDY AND D. A. REVZAN†

WHILE the major emphasis in this article is upon an analysis of those conditions which determine the economic location of the principal marketing facility in the wholesale fruit and vegetable market, the attention of the reader should first be directed to certain facts which are important in coming to an understanding of the specialization in marketing facilities which has taken place and of some of the factors which have operated to bring this about. One may conveniently divide discussion of the controlling factors into those which are primarily physical in character and those which are nonphysical, in that they are associated with different trading practices and with the economic interests of different trade groups. These underlying conditions determine not only differences in kinds of facility but to a very large degree their different location within the terminal.

Looking first at the physical factors, one finds a group which is associated with the commodity being marketed. Bearing primarily upon the location of market facilities with respect to each other, there is the obvious factor of distance with its corollary, time. Since extended discussion of these factors of distance and of time is involved in the analysis which follows of the site location of the South Water Market, attention will be directed at this point to those physical characteristics of commodities which

* Figures 1–4 and Tables 1 and 2 have appeared in the first article of this series: "Transportation and Marketing Facilities for Fresh Fruits and Vegetables in Chicago," *Journal of Business of the University of Chicago*, XII (July, 1939), 280–97. Tables, figures, and footnotes in this and succeeding instalments continue the numbering from the first article.

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influence the kind of marketing facility used and its separate location.

Most obvious of the physical characteristics of fruits and vegetables is their varying degree of perishability. At one end of the scale are commodities like apples, winter pears, potatoes, and onions which are so resistant to decay that they may be stored over many months; at the other end are watermelons, wine grapes, and strawberries, which are so perishable that they must be sold on arrival. For those commodities which may be stored, there is obviously the need for commercial refrigerated warehouses, and with these the Chicago market is abundantly serviced. As of 1939, seventeen warehouses had a total capacity of 36,640,464 cubic feet, of which 22,111,536 cubic feet was classed as cooler space and 14,528,928 cubic feet as freezer space. All these warehouses were located on railroad lines with side-track capacities of from four to sixty cars. While a relatively small part of this total space is used for the storage of fresh fruits and vegetables, potatoes being stored at shipping-points in the country rather than at the terminal, the volume handling of such commodities as apples and onions makes necessary the availability of this service. The location of these warehouses within easy access of the principal jobbing markets is important. Discussion of this relation of facilities appears at a later point.

To clarify the routing of this group of relatively nonperishable commodities through the market, reference must be made to their bulk and degree of standardization—two additional physical characteristics which have much to do with the handling of perishables. Potatoes are bulky and heavy relative to their value. Jobbers and institutional buyers take delivery from wholesalers at the car door. Many deliveries to retailers are made without going through the South Water jobbing market. The large volume of this potato tonnage justifies special railroad facilities for receiving and unloading and for handling reconsignments. These facilities have been described in a previous article in this series to which reference has already been made. The absence of a high degree of standardization in bulk shipments, of which potatoes, northern cabbage, turnips, and some apples and

pears are representative, also makes necessary their inspection and sale at the terminal yard.

At the other end of the scale of perishability are two groups of commodities which are so highly perishable that they must be given special handling. Watermelons and wine grapes are the first group; bananas and tomatoes, the second. Watermelons and wine grapes are so easily damaged with handling that they are mostly sold from the car door at the railroad terminal and generally at auction. The buyers are not only jobbers but retail peddlers, and for the bulk of these commodities there is but one movement from car door into consumption or processing.

Bananas and tomatoes are shipped green and move into ripening cellars or lofts. A banana shed for protection against low temperatures is located on the tracks of the Illinois Central Railroad at East South Water Street. Practically all banana shipments arrive on this road. Special facilities for ripening are controlled by a small group of merchants, mostly in the South Water Market. Many tomatoes are repacked from twenty-five-pound lug boxes into smaller baskets, each fruit being wrapped in a cellophane or paper wrapper. The routing of these commodities is therefore determined by their need for special services.

Between these two groups of relatively nonperishable bulky commodities and the highly perishable lie the majority of fruits and vegetables sold through the regular channels of trade. These commodities can stand handling from car to truck and movement into and out of the jobber's store, with final delivery to the retailer. The unit of purchase by jobber and retailer reflects the small-unit, wide-variety demand of the housewife. They therefore move from the unload point to the jobbing market where they may be attractively displayed and sold to retailer-buyers in small units.

Within this group of commodities, however, one must distinguish a small number of fruits which lend themselves to sale at auction. These are the citrus and deciduous fruits which have reached the highest degree of standardization in production, packaging, and marketing. By far the greater volume of such fruits is diverted from the regular channel of movement to the auction

market. Unloaded directly from the car to the floor of an auction warehouse, the carlot shipment is made available for inspection by wholesale buyers. A representative number of boxes is opened, and the buyer appraises the entire lot on the basis of his inspection of these opened boxes. Transfer of title in the auction-room results in the diversion of much of this tonnage around the jobbing market directly to chain-store, institutional, and out-of-town buyers.

TABLE 3

CHICAGO AUCTION SALES OF FRUITS AND VEGETABLES AS A PERCENTAGE OF THE TOTAL RAIL AND TRUCK UNLOADS, 1934–38

Year	Auction Sales* (Cars)	Total Unloads† (Cars)	Per Cent
1934	11,348	75,810	14.97
1935	12,162	77,526	15.69
1936	11,644	75,588	15.40
1937	11,110	81,886	13.57
1938	11,539	82,943	13.91

* Source: Kelsey B. Gardner, *Terminal Fruit Auctions as Marketing Agencies for Farmers' Cooperatives* (Farm Credit Administration Bull. 29 [Washington: Government Printing Office, November, 1938]), pp. 12–13, for 1934–37 data. Data for 1938 from Fruit Auction Sales Company.

† Source: Market News Service (Chicago Office), Bureau of Agricultural Economics, United States Department of Agriculture.

Data available since 1934 indicate that at Chicago the auction company sells approximately 13.6–15.7 per cent of the annual total unloads of all fruits and vegetables (see Table 3). A better indication of the importance of the terminal auction is found in the relation of its sales, by type of fruit, to the total unloads of such commodities; the importance of the citrus and deciduous fruits is at once apparent (see Table 4). Not only do these fruits make up the bulk of the auction sales but the auction sales, in turn, account for well over one-half of the total unloads of these fruits in the Chicago market (see Table 5).

From the data, then, it is apparent that for fresh fruit to be sold at auction it must possess the following characteristics: (1) the supply offered for sale by the auction company must consti-

tute a significant proportion of the total supply available at the market; (2) since the goods are seasonal in movement, the auction company should obtain supplies of those fruits which move in significant volumes during the longest seasons, or obtain supplies of fruits with compensating seasonal movements; (3) the fruit must be graded according to government sizes and standards and

TABLE 4*

DISTRIBUTION OF THE AUCTION SALES AT CHICAGO, BY THE PRINCIPAL GROUPS OF FRUITS SOLD, 1934–38

Year	Citrus	Deciduous	Pineapples	Melons and Miscellaneous	Total
	Number of Cars				
1934	6,862	4,330	154	2	11,348
1935	7,464	3,708	120	870	12,162
1936	7,227	4,196	220	1	11,644
1937	6,963	3,857	290	0	11,110
1938	7,256	4,002	225	56	11,539
	Per Cent of Total				
1934	60.47	38.16	1.36	0.01	100.00
1935	61.37	30.49	0.99	7.15	100.00
1936	62.07	36.04	1.89	†	100.00
1937	62.67	34.72	2.61	0	100.00
1938	62.88	34.68	1.95	0.49	100.00

* Source: Gardner, *op. cit.*, pp. 12–13, and Fruit Auction Sales Co.
† Less than one-tenth of 1 per cent.

be packed in standard containers; and (4) the producers or shippers should operate on a scale large enough to assure the auction company of continuous supplies of the quality needed. It should be remembered, however, that these sales by sample involve only two important classes of fruits and that for these commodities the transactions are between different types of wholesale middlemen. In sales from the wholesale to the retail middlemen the element of personal inspection is almost as important for these two kinds of fruits as for any of the other kinds in the jobbing market.

Enough has been said to show how the physical factors of perishability, bulk, and degree of standardization of the commodity, together with volume of tonnage and character of demand, have a controlling effect upon the kind and location of marketing facility used. Let us turn now to the nonphysical factors which are associated with the trading practices and economic interests of the different groups of merchants and selling agents in the market.

TABLE 5*

PERCENTAGE OF THE TOTAL UNLOADS OF CITRUS AND DECIDUOUS FRUITS AND PINEAPPLES IN THE SOUTH WATER MARKET, SOLD BY THE FRUIT AUCTION SALES COMPANY, 1934–38

Year	Citrus Fruits	Deciduous Fruits†	Pineapples
1934	73.38	54.34	62.35
1935	71.51	39.06	48.00
1936	72.19	57.96	52.88
1937	69.65	50.12	61.70
1938	64.70	45.58	62.15

* Sources: The data of auction sales are from Gardner, *op. cit.*, pp. 12–13, and the Fruit Auction Sales Company. The data of total unloads of fruits are from the Market News Service (Chicago Office) of the Bureau of Agricultural Economics, United States Department of Agriculture.

† Includes apples, apricots, cherries, peaches, pears, plums and fresh prunes, and mixed deciduous fruits. The data of total unloads of deciduous fruits include the estimated volume of unloads arriving by motor truck.

Integration of marketing service through the chain-store warehouse is a contributing factor in the physical routing of fruits and vegetables through the terminal and thus helps to determine the kind and location of marketing facilities. In 1936 chain-store warehouses handled 17.75 per cent of the total unloads of fruits and vegetables in the market. To a considerable extent the decline in auction sales of citrus fruit, relative to total unloads, is attributable to increased handling through chain-store warehouses (see Table 5). Unloading from the car directly into the warehouse, with truck delivery from this point to the retail store, effectively short-circuits the movement through regular channels and makes for economy. Such direct handling is made possible by prior purchase in carlots at country shipping-points.

It is matter of historical note that when removal of the South Water Market from its old location on the Chicago River was first considered, it brought into conflict the interests of two major groups of merchants. Two plans of removal were proposed. One was that the merchants should move to a new location not too far removed from the central business and hotel district with the relation to railroad transportation facilities left much as it had been—that is, without any direct contact of the market with the railroad. The other plan placed primary emphasis on close contact with railroad terminal service and worked for a market located at a union terminal yard. Sponsoring the first plan was the larger group of jobbers whose business was chiefly that of selling to retailers or in making mixed carload shipments off the market. Behind the second plan were the wholesale carlot receivers, the brokers, and the auction companies. These latter dealt in carlot quantities, and the wholesalers and brokers made many sales to other cities and did a large share of the total business. It was only after the larger group of jobbers had picked a location and obtained an option on the land that a compromise was effected. The wholesale receivers agreed to conduct the jobbing end of their business in the new jobbing market, while the jobbers agreed to give their support to the plan of the receivers for a railroad produce terminal which should later be developed. A description of these facilities has been given in an earlier article.

Differences in methods of operating are thus seen to underlie the demand for different types of marketing facility differently located. Carlot dealers and brokers are interested in the concentration of carlot arrivals at the fewest number of points so that inspection of the contents of cars by prospective buyers can be facilitated; so that cars can be reconsigned to other markets with the minimum of delay; and so that they can be held on track, if need be, to await the development of a favorable demand.

The auction company likewise is interested in the concentration of arrivals of those commodities which lend themselves to the auction method of sale so as to minimize the switching of cars from one terminal to another. Such highly perishable commodi-

ties as watermelons and wine grapes must, by their nature and method of sale by auction, be concentrated at a single railroad terminal. Brokers representing country shippers find their operation of locating a buyer simplified when brokers representing eastern buyers appear at the rail terminal where the cars are available for inspection. For wholesalers making local sales, car-door deliveries are facilitated at team tracks with especially wide platforms.

Jobbers and commission firms feel that they have need for a separate jobbing market the location of which is adjusted to retail and institutional trade rather than to railroad terminals. The jobbing market is a recognition of the need of the retailer for small-unit buying of a wide variety of produce with opportunity for comparing quality and price with the least expenditure of time. It was not thought possible at the time the new South Water Market was located to find a railroad terminal not too far removed from the center of retail trade and of sufficient size to accommodate both the carlot and the jobbing business. The auction market has made this adjustment for a select group of commodities with resulting economies in physical handling. Large-volume receipts and a high degree of standardization in the commodity have made this possible. Jobbing facilities will continue to be necessary as long as buyers must make careful inspection of each individual lot purchased and as long as the majority of commodities remain relatively unstandardized as to grade and pack. Whether the present jobbing market is well located from an economic point of view is the subject of the analysis which follows.

SITE LOCATION OF THE SOUTH WATER MARKET

Accessibility to points of rail receipt.—Neither the old nor the new South Water Market in Chicago has had direct connection with any of the railroads which enter Chicago.[26] To measure adequately, therefore, the relative accessibility of each of these markets to the points of rail receipt, it has been necessary to

[26] See the first article in this series, "Transportation and Marketing Facilities for Fresh Fruits and Vegetables in Chicago," *loc. cit.*

obtain from the various railroads data of the volume of unloads at the various team tracks handling fruits and vegetables. On the basis of such data for 1923, including the movement by boat, it is estimated that approximately 64 per cent of the total of 83,092 cars was unloaded at team tracks within one mile of the old South Water.[27] Another 29 per cent was unloaded at points 1–1.9 miles distant; 7 per cent was unloaded at team tracks 2–2.9 miles distant; and less than 1 per cent at team tracks 3 miles or more away. Some 29 separate team-track facilities handled this volume, with the majority located 1–1.9 miles from the market (Table 6).

The removal of the South Water Market in 1925 to its new location some 2½ miles to the southwest was bound to upset these adjustments of the market location to the old points of rail receipt and unload. On the basis of the 1923 data, it appears that about two-thirds of the total unloads originated north of Harrison Street (see Fig. 1 and Table 6). Some readjustments in the location and capacity of team tracks, therefore, were necessary. The Illinois Central and Santa Fe railroads created new capacity in the Chicago Produce Terminal, the facilities of which have been previously described. The Chicago and Northwestern Railroad shifted its handling of perishable produce from team tracks at Grand Avenue to team tracks at Sixteenth Street, and later developed the Wood Street Terminal (cf. Fig. 1 with Fig. 2). The Santa Fe, in addition to developing the Chicago Produce Terminal, also shifted traffic away from its Taylor Street team tracks to its facilities at Fifteenth and Twenty-first streets, respectively. Some roads, such as the Chicago, Milwaukee, St. Paul and Pacific, no longer receive fruits and vegetables at their team tracks but arrange to switch inbound cars to the Chicago Produce and Wood Street terminals.[28]

Table 7 shows the unloads of fruits and vegetables at team

[27] This estimate is based upon data which included unloads of perishable produce other than fresh fruits and vegetables at the Chicago, Milwaukee, St. Paul and Pacific team tracks. For data see Edward A. Duddy, "Distribution of Perishable Commodities in the Chicago Metropolitan Area," *Journal of Business of the University of Chicago*, IV (April, 1926), 164–66.

[28] The changes affecting the specialized facilities for watermelons were discussed in the first article.

tracks for the years 1926–29 and for 1937, together with the number of points of unload involved. From the data it is possible to conclude that the 1–1.9 mile zone, containing both the Chicago Produce and the Wood Street terminals, is the zone within which the bulk of the rail receipts of the new market originates. In 1937, when complete data were available, this zone accounted for three-fourths of the market's unloads arriving by rail. This means, then, that the accessibility of the market to points of unload which

TABLE 6

UNLOADS OF FRUITS AND VEGETABLES AT CHICAGO IN 1923, BY RAIL, EXPRESS, AND BOAT, CLASSIFIED ACCORDING TO THE DISTANCE OF THE FACILITIES FROM THE OLD SOUTH WATER MARKET*

Mileage Zone	Number of Facilities	Number of Cars	Percentage of Total
Less than 1 mile...	9	52,797†,‡	63.54
1–1.9 miles.....	17	24,312§	29.26
2–2.9 miles.....	2	5,410	6.51
3 miles and over...	1	573	0.69
Total.....	29	83,092	100.00

* The data of unloads at team tracks were obtained from the records of the respective railroads. The data of the boat and express unloads are from the Chicago office of the Bureau of Agricultural Economics, United States Department of Agriculture.

† Includes boat unloads amounting to 3,825 cars.

‡ Includes produce other than fruits and vegetables.

§ Includes express unloads amounting to 605 cars.

prevailed in 1923 has not been improved. Accessibility, in terms of distance, has really been reduced to the extent that over one-half of the unloads are now being trucked to the market from distances averaging twice that for the older market. There has been, however, a decrease in the proportion originating in the 2–2.9 mile zone; this has been due mainly to the opening by the Chicago and Northwestern railroad of its Wood Street Terminal.

But a mere doubling of the average distance from which the unloads move to market is not an adequate measure of the change. In the first place, the speed and capacity of the transportation vehicles have increased. While the number of points of unload has not declined, an increasing proportion of supplies is unloaded

TABLE 7*

UNLOADS OF FRUITS AND VEGETABLES AT CHICAGO, 1926–29 AND 1937, BY RAIL, CLASSIFIED ACCORDING TO DISTANCE FROM THE NEW SOUTH WATER MARKET

MILEAGE ZONE	1926			1927			1928			1929			1937		
	No. of Facilities	No. of Cars	Per Cent	No. of Facilities	No. of Cars	Per Cent	No. of Facilities	No. of Cars	Per Cent	No. of Facilities	No. of Cars	Per Cent	No. of Facilities	No. of Cars	Per Cent
Less than 1 mile†	8	11,232	14.6	8	13,754	16.8	8	13,346	15.8	7	10,172	11.3	7	11,466	18.1
1–1.9 miles	24	46,755	60.6	24	45,783	56.1	26	52,851	62.4	20	57,813	64.1	20	47,466	75.1
2–2.9 miles	5	19,099	24.8	5	22,158	27.1	5	18,498	21.8	5	21,430	23.7	3	4,272	6.8
3 miles and over	‡	‡	‡	‡	‡	‡	‡	‡	‡	4	846	0.9	‡	‡	‡
Total	37	77,086	100.0	37	81,695	100.0	39	84,695	100.0	36	90,261	100.0	30	63,204	100.0

* Boat and express unloads are excluded from this tabulation.

† Excludes Soo Lines team tracks for 1929; Baltimore and Ohio for 1937.

‡ Included in the 1–1.9 mile zone for 1926, 1927, 1928, and 1937.

at fewer team tracks. Again the physical features of the present team tracks permit greater speed in the unloading or loading of cars, thus reducing the time involved. Further, the produce now travels over wider streets and meets with less congestion en route to the market than was formerly true. And, finally, an increasing proportion of the supplies is being delivered from the producer in the country directly to the market middlemen by motor truck.

The present team tracks furnish better facilities for those middlemen who sell or deliver to buyers at the track. The narrowness of many of the old team-track driveways has been eliminated. Specialized commodity team tracks, heated inspection platforms, paved driveways, modern lighting of yards, adequate scales, provisions for reconditioning platforms, and the fencing-off of the team tracks have all facilitated car-door and track sales.[29] There are no data to indicate the amounts of the respective fruits or vegetables sold out of the car.

Information is available to indicate that the volume of track sales at Chicago for certain fruits and vegetables has been increasing in recent years. One indication of this is the fact that from 1923 to 1927, 63–71 per cent of the carlot arrivals of onions in Chicago were unloaded; since 1934, the ratio has varied from 54 to 59 per cent.[30] Many of these reshipments represent reconsignments rather than diversions.[31]

Accessibility of the market to cold-storage facilities.—With respect to inbound supplies of fruits and vegetables which are to be placed in cold storage, the location of the refrigerated warehouses involves no problem of accessibility to the South Water Market

[29] "Car-door sales" refer to types of sales in which produce is jobbed from the railroad car and delivery made directly to local purchasers. "Track sales" refer to sales made in carlot quantities to either local or out-of-town wholesale middlemen.

[30] A later section will discuss in more detail these trends for the more important fruits and vegetables.

[31] For purposes of this discussion, a reconsignment involves a change in the consignee after a shipment has reached its initial destination. A diversion, on the other hand, involves a change in destination usually before the original destination has been reached. It is apparent that in many cases both may occur at the same time. The importance of these privileges is due to the fact that through carlot rates are protected at little or no additional expense.

(or other wholesale markets) since in the majority of cases the railroad car is switched to the warehouse siding. It has already been indicated that two cold-storage warehouses are immediately adjacent to the South Water Market (see Fig. 3). Their locations facilitate handling and distribution on the outbound movement to the market and reduce the length of the hauling movement. Additional space is available to the north at the Fulton Market about 2½ miles distant, to the east about 1½ miles distant, or at the Union Stock Yards (seldom used except for apples), a distance of 3 miles. A cold-storage facility for such produce as is stored at Chicago in transit to eastern cities is available in the southern suburb of Blue Island. For inspection purposes, however, this facility is too far distant from the South Water Market, a factor which has tended to reduce its importance for such purposes.

The facilities of the Fulton Market are likewise available for the use of the members of the Randolph Street Market. For such persons, the distance involved does not exceed a few city blocks. The South State Street Market has its market refrigerated facilities at the Union Stock Yards, a distance of over 4 miles.[32]

Accessibility of the market to motor-truck transportation.—It is one thing to locate a wholesale fruit and vegetable market with the knowledge that all the produce handled therein will arrive by rail or boat. This was the condition in South Water Market before its relocation. But, when nearly one-fifth of the volume arrives by motor truck, as is now the case, the problem of accessibility takes on a different aspect, namely, the location of the market with respect to the highways that connect the market with near-by areas of production.

The South Water Market is strategically located with reference to several east-west and north-south through streets which connect at the city limits with those arterial highways which tap the producing regions. Broad streets immediately to the west of the market furnish easy access for those trucks originating loads either to the south or to the north of the city. Similarly, several east-west streets to the north and south of the market furnish connec-

[32] A later section will present in detail the capacities and locations of these several refrigerated warehouses.

tions with the truck-farm areas immediately to the west of the city. To the extent that most trucked-in produce is scheduled to arrive in Chicago during the late evening and early morning hours, the trucks avoid the heavy traffic which frequents these highways during regular business hours.

The importance of the directional movement of trucked-in produce for the present location of the South Water Market is indicated in Table 8. A significant part of the total movement originates in areas to the south and east of the city. No data are available, however, to indicate accurately the total from this source.

On the basis of 1936 data, it would appear that the Randolph Street Market is most important for trucked-in produce, receiving two-fifths of the total truck movement of 16,459 cars. Another one-third moved to the South Water Market, while chain-store warehouses and the South Water Market received 15 and 12 per cent, respectively. It should be noticed that the Randolph Street and the State Street markets are just as accessible to arterial highways as is the South Water Market (Table 9 and Fig. 2). These markets have the additional advantage of permitting the itinerant truck-peddler to sell his produce to the highest bidder with the payment of a small fee for standing his truck in the market. Further, the Randolph Street Market is somewhat more strategically located with respect to truck farms west and northwest of the city.

The growing movement by truck has tended to increase congestion at the South Water Market proper. The trucks that carry fresh fruits and vegetables from farm to market often use trailers. In many cases one such unit may not only effectively block the entrance to a store but may also interfere with the movement of other vehicles along the street. Some arrangement is needed, similar to that of a rail terminal, where all inbound trucks can be concentrated. Facilities of this nature would have the further advantage of improving the accuracy of information with respect to arrivals and permit the development of truckload sales in the same manner as carlot sales. Producers would be better able, also, to conduct selling operations in the manner of farmers' markets in

TABLE 8*

ESTIMATED TRUCK RECEIPTS OF FRUITS AND VEGETABLES IN THE SOUTH WATER MARKET
1931–38, BY STATES OF ORIGIN
(In Carlots)

STATE	1931		1932		1933		1934		1935		1936		1937		1938	
	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Illinois	70	4.47	27	0.49	1,643	26.10	3,870	36.69	4,557	43.54	2,451	44.47	5,044	44.75	6,057	44.38
Indiana	.....	.....	44	0.80	304	4.83	873	8.28	719	6.87	242	4.39	1,343	11.91	921	6.75
Michigan	1,497	95.53	5,406	98.71	3,897	61.92	3,517	33.34	3,601	34.40	1,781	32.32	2,955	26.21	3,616	26.50
Missouri	.....	.....	.....	.....	62	0.99	316	3.00	276	2.64	175	3.17	622	5.52	844	6.18
Ohio	.....	.....	.....	.....	9	0.14	537	5.09	400	3.82	270	4.90	312	2.77	527	3.86
Tennessee	.....	.....	.....	.....	87	1.38	380	3.60	285	2.72	236	4.28	406	3.60	781	5.72
Wisconsin	.....	.....	.....	.....	291	4.62	967	9.17	431	4.12	288	5.23	402	3.57	271	1.99
Unclassified†	.....	.....	.....	.....	1	0.02	88	0.83	198	1.89	68	1.24	188	1.67	631	4.62
Total	1,567	100.00	5,477	100.00	6,294	100.00	10,548	100.00	10,467	100.00	5,511	100.00	11,272	100.00	13,648	100.00

* Source: Bureau of Agricultural Economics (Chicago office), U.S. Department of Agriculture.

† Includes: Alabama, Arkansas, Florida, Georgia, Iowa, Kansas ,Kentucky, Minnesota, Mississippi, New Jersey, New York, North Carolina, Oklahoma, Pennsylvania, Louisiana, Maryland, and Virginia.

other cities. If sales could be made directly from the trucks, the expense of handling the produce through the jobber's store would be avoided. It would be desirable for such a truck terminal to develop in close proximity to the present market in order to facilitate price comparison and to allow buyers to obtain commodities not in season in the near-by producing regions.

Accessibility of the market to lake transportation.—In former years significant quantities of Michigan fruits and vegetables were

TABLE 9*

ESTIMATED UNLOADS OF TRUCKED-IN FRUITS AND VEGETABLES AT CHICAGO IN 1936, CLASSIFIED BY RECEIVING MARKET

Market	Number of Cars	Percentage of Total
Randolph Street	6,504	39.52
South Water	5,511	33.48
Chain-store warehouse	2,469	15.00
South State Street	1,975	12.00
Total	16,459	100.00

* Source: William C. Crow, *The Wholesale Markets for Fruits and Vegetables in 40 Cities* (U.S. Department of Agriculture Circ. 463 [Washington, February, 1938]), p. 49.

carried to Chicago in boats operating on Lake Michigan. During the peak of the movement as many as thirteen boats were in use. The Chicago Pier was the point of unload in Chicago for this lake movement and was within one mile of the old South Water Market (Fig. 1).

With the relocation of the market and the development of the Chicago Produce Terminal adjoining the Chicago River, it was thought that this movement could be adequately handled.[33] The Michigan farmer who heretofore did not ship by rail had to load a wagon or truck, drive it to the boat dock, and then transfer the produce from the vehicle to the boat. Upon arrival in Chicago, the load was transferred from the boat to the wharf, and then on

[33] It appeared either that the lake boats would move via the river to the unloading docks adjacent to the terminal or that the produce would be transferred to barges for the river haul.

to the truck or wagon for movement to the respective markets. The completion of the last link of the wide, concrete Dunes Highway (connecting Gary, Indiana, with Michigan City, Indiana) in the late spring of 1924, marked the beginning of the end of this lake traffic. The movement by truck operated to reduce the number of handlings and, with the saving of time en route, resulted not only in reduced cost of transport but also in larger returns from sales because the produce arrived in better condition. The boat traffic which amounted to the equivalent of 3,825 carloads in 1923 had practically disappeared by 1929.[34]

The relocation of the South Water Market did not result in any closer adjustment of the market to either rail or water facilities. Actually the average distance of the haul from team tracks was increased by one mile (see Tables 6 and 7), but the increased capacity and speed of the delivering vehicle reduced the length of time in transit. The new location was further benefited by the two rail terminals which tended to concentrate supplies at fewer points. Other benefits resulted from provisions for two specialized team tracks for the handling of potatoes and for their track and car-door sale. Accessibility to the motor-truck movement has become of increasing importance, and provision must sometime be made for centralized handling of truck receipts. The completion of the Dunes Highway has eliminated the boat movement of fruits and vegetables to Chicago.

Accessibility of the South Water Market to other wholesale markets.—The Randolph Street Market is but two miles directly north of the South Water Market, while the South State Street market is approximately one mile east and seven miles south (see Fig. 2). Estimates for 1936 indicate that these markets each purchased the equivalent of 500 cars of fruits and vegetables from the South Water Market.[35] Such a small volume of intermarket movement raises no important problems of accessibility. Chain-store warehouses received direct supplies in 1936 of 12,140 cars by rail and 2,469 cars by motor truck. In addition, they purchased

[34] Unloads of the equivalent of 31 cars were reported in 1931.

[35] Crow, *op. cit.*, p. 49.

2,700 cars from the South Water Market and 300 cars from the Randolph Street Market.[36]

The most important of these chain-store warehouses, that of the Atlantic Commission Company, is located one-half mile directly west of the market. The subsidiary of another large chain, the Wesco Food Company, has offices on the market although its warehouse is located several miles away. One voluntary chain obtains supplies through its wholesale subsidiary which occupies a store near the market. No particular problems of accessibility are involved, however, since most of the chain-store purchases from the South Water Market move directly to the retail units of the company in either hired or owned trucks. Where chain stores purchase supplies from producers, such goods are switched or trucked directly to the chain warehouses

Accessibility to purchasers.—The relation of a central market, such as the South Water Market, to its buying customers is subject to the operation of many influences. Purely from a distance viewpoint its location tends to approximate the center of the territory to be served. This concept of distance, however, is modified by the geographical distribution of population to the extent that the number per square block tends to vary from community area to community area. Again, consumption habits vary according to the age, race, income, and size of family in the population. These differences, plus the variations in geographical distribution, are reflected in an unequal distribution of those retail outlets which sell fruits and vegetables. A further disturbing influence results from the presence in the city of a central shopping and hotel district. Finally, a central market usually furnishes supplies not only for the city proper (an arbitrary political unit), but also for the territory best described as its metropolitan district. The following analysis, then, will attempt to discuss the location of the market in relation to each of these factors.

Accessibility to the market from the viewpoint of the purchaser involves the ease with which he may reach the market in order to obtain his fruit and vegetable requirements. To the purchaser,

[36] *Ibid.*

speaking generally, the best possible location of the market would be at a point as close as possible to his place of business, providing he could get the necessary selection of produce at desirable prices. In traveling long distances to obtain his fruit and vegetable supplies it follows, therefore, that the purchaser is motivated by necessity due to the lack of other market facilities from which he can obtain an adequate variety and quantity of supplies at satisfactory prices. This means that he must, typically, do all his purchasing in as few places as possible if he is to economize his time.

In Chicago the overwhelming importance of the South Water Market as a source of supply, makes necessary a great expenditure of time in travel if the retail purchaser buys his requirements in person. At a later point it will be made clear why the nature of the fresh fruit and vegetable business makes purchase by personal inspection so important. At this point it is sufficient merely to repeat that only one market at present receives fruits and vegetables in quantities sufficient to offer complete lines to purchasers; the other markets handle incomplete lines consisting principally of home-grown produce. This factor of distance of the market from the retailer has been offset to some degree by the development of the truck jobber. It is true, also, that the increasing use of the automobile and motor truck has meant an increase in the average speed with which the purchaser can reach the market.

The South Water Market is located close to the geographical center of the city. Since the city is roughly rectangular in shape, however, this does not mean that the market is equidistant from all boundaries. For reaching the West Side areas and the western suburbs, the market is in a more strategic position than for reaching any other section with the exception of the Loop. The distance concept of central market location is modified by the influence of the Loop which lies to the northeast of the market along Lake Michigan, halfway between the city's north and south boundaries (see Fig. 1). Because of its large transient population, most of whom eat at least one meal a day there, the Loop offers a market for much of the fresh fruits and vegetables shipped into Chicago.[37]

[37] Traffic engineers for the city of Chicago estimated that on a typical week day of May, 1937, the following numbers of persons entered the Loop between 7:00 A.M. and 7:00 P.M.: by street cars, 248,946; by elevated, 209,590; by steam railroads,

The location of the market will be modified, therefore, to the extent that close contact with this central district must be maintained.

The South Water Market is farther removed from the central shopping and hotel district than it was at its former location. By the use of the motor truck, however, little additional time is required for making deliveries. Some slight advantage does accrue to the Randolph Street Market for the delivery of home-grown produce. On the other hand, one important advantage of the present location of the South Water Market is that delivery to customers at locations other than the Loop may now be effected without having vehicles pass through the highly congested streets of the business district.

Accessibility to buyers, other than wholesalers in other markets, is a function of the distribution of purchasing institutions such as hotels, clubs, hospitals, etc., and of retail stores. The institutional type of buyer represents a demand for rather fixed qualities of fruits and vegetables in rather large quantities. Retail-store purchases, on the other hand, usually represent a smaller scale of demand which tends to fluctuate widely from day to day. The importance of the institutional business has resulted in the establishment of special jobbing interests in the market to handle it. Based on data for 1935, the total of purchasers of all types is estimated at 17,425 establishments (Table 10).

Data are available which indicate the distribution of 9,308 grocery stores in seventy-five community areas as well as the number of such stores per 1,000 persons and the average annual sales per store in 1935 (see Table 11 and Fig. 5). The relationships between population, income status, and number of stores are variable. Some areas, though small in population, have more grocery stores per 1,000 persons than do the larger areas. On the other hand, there is a definite inverse relationship between the number of stores per 1,000 persons and the average sales per store in 1935. It would appear that lower-income groups support proportionate-

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103,505; by motor buses, 57,106; by passenger autos, 226,699; and by pedestrian bridges, 13,855—for a total of 859,701. It is estimated that other transient population at hotels would increase this figure to approximately 900,000 persons.

ly more stores with a corresponding depressing effect on sales per store. These data indicate the variations by districts within the city in purchases of fruits and vegetables per store which merchants of the South Water Market can expect. Grocery stores in the Loop averaging sales of over one-half million dollars per year will be far better customers than stores doing but two thousand dollars' worth.

TABLE 10*

ESTIMATED NUMBERS OF RETAIL STORES AND INSTITUTIONS IN CHICAGO PURCHASING FRESH FRUITS AND VEGETABLES, 1935

Type	Number
Bakeries and caterers	865
Combination grocery and meats	3,454
Delicatessen	707
Drug (with fountain)	1,431
Fruit and vegetable	765
Groceries (without meats)	6,003
Hospitals	109
Hotels	550
Lunch counters	728
Pie bakeries	10
Railroads	22
Restaurants	2,646
Miscellaneous	150
Total	17,425

* Source: U.S. Department of Commerce, Bureau of the Census, *Census of Distribution (1935)*, Vol. II: *Retail Distribution*, December, 1936, p. 123; see also *Chicago Classified Telephone Directory*, March, 1939.

It has been indicated that the controlling influences in the urban distribution of fruits and vegetables are the distribution of population, variation in purchasing power, and differences in consumption habits. With reference to the numbers of consumers and their geographical distribution, two sets of data are available: (1) the number of persons in 1934 in each of seventy-five community areas in Chicago and in suburbs and (2) the percentage increases or decreases in the population of these districts since 1920 (see Table 12 and Fig. 5). If the population of the city is grouped in districts according to direction from the South Water

TABLE 11

NUMBER OF GROCERY STORES PER THOUSAND PERSONS AND AVERAGE ANNUAL SALES VOLUME PER STORE IN SEVENTY-FIVE COMMUNITY AREAS,* 1935

AREA NO.	NO. OF STORES		AVER. SALES PER STORE (THOUSANDS)	AREA NO.	NO. OF STORES		AVER. SALES PER STORE (THOUSANDS)
	Total	Per 1,000 Persons			Total	Per 1,000 Persons	
1	107	1.82	$ 34.83	40	106	2.36	$17.20
2	74	1.72	29.57	41	80	1.85	39.80
3	229	1.86	34.73	42	141	2.35	24.88
4	105	2.30	23.55	43	158	2.07	30.97
5	141	3.00	12.76	44	93	2.52	25.05
6	257	2.29	22.00	45	22	2.24	21.95
7	259	2.87	17.46	46	167	3.12	13.66
8	205	2.79	21.65	47	16	4.73	2.75
9	12	2.13	38.25	48	16	2.30	14.33†
10	27	1.76	17.41	49	107	2.46	22.12
11	62	2.93	16.81	50	26	4.18	8.58§
12	7	1.54	13.75‡	51	17	2.19	12.86‖
13	19	1.65	30.16	52	52	3.28	23.48¶
14	121	2.17	18.59	53	95	2.88	11.33
15	171	2.62	16.19	54	4	3.08	20.00**
16	175	2.65	14.94	55	24	3.43	10.21
17	63	2.93	12.38	56	26	4.26	9.46
18	24	2.69	25.50	57	26	3.18	6.62
19	177	2.81	11.84	58	181	3.96	5.66
20	59	2.50	16.39	59	80	3.90	8.25
21	134	2.83	13.95	60	228	4.73	5.96
22	361	3.34	11.36	61	324	3.95	6.34
23	236	3.02	12.01	62	9	3.09	2.33
24	637	3.72	7.24	63	105	3.40	8.70
25	337	2.61	22.06	64	16	2.97	22.56
26	99	2.12	23.71	65	22	2.34	16.09
27	179	3.06	11.90	66	132	2.74	17.48
28	495	3.52	8.94	67	199	3.14	13.62
29	258	2.50	8.62	68	238	2.79	29.03
30	235	3.12	5.86	69	150	2.59	20.99
31	243	4.16	5.37	70	1	1.65	††
32	18	5.10	547.33	71	125	2.14	23.43
33	23	2.93	11.30	72	24	1.66	44.88
34	97	4.70	6.47	73	48	2.43	24.29
35	153	3.33	13.48	74	13	3.48	20.54
36	44	3.47	17.11	75	33	2.37	16.97
37	46	3.38	10.26				
38	264	2.97	13.76	Total	9,308	2.86	$ 16.47
39	51	2.10	32.57				

* See Fig. 6 for the boundaries of these areas. Source: Data on population from Table 12. Other data from U.S. Department of Commerce, Bureau of the Census, *Census of Business (1935): Geographic Distribution of Retail Trade in Chicago, Illinois*, June, 1939.

† Sales data for nine stores.

‡ Sales data for four stores.

§ Sales data for nineteen stores.

‖ Sales data for fourteen stores.

¶ Sales data for thirty-one stores.

** Sales data for three stores.

†† No data.

COMMUNITY AREAS OF CHICAGO

AS ADOPTED BY CENSUS BUREAU, 1930

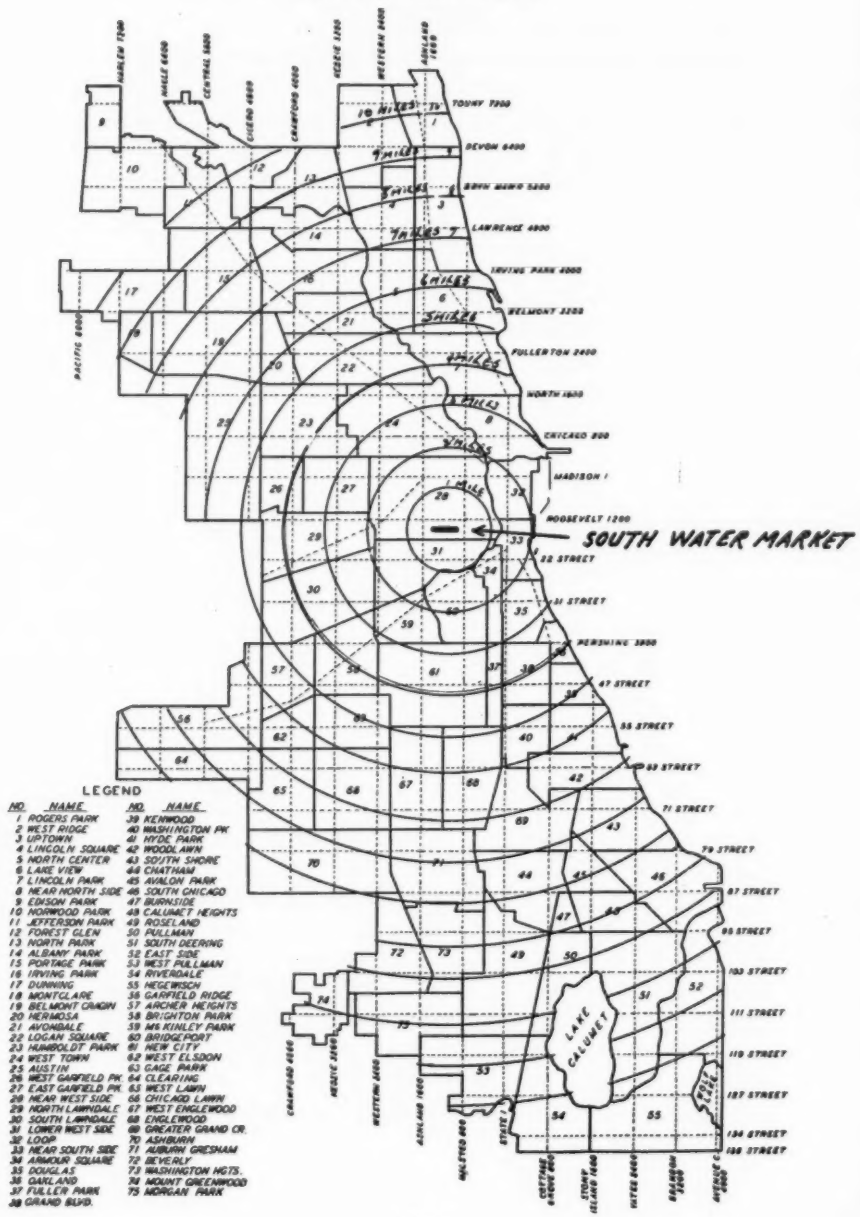

FIG. 5

Market (northwest, northeast, southwest, and southeast), it will be found that the market is centered with respect to number of

TABLE 12*

POPULATION OF SEVENTY-FIVE CENSUS COMMUNITY AREAS IN CHICAGO, 1934, WITH PERCENTAGE INCREASES OR DECREASES SINCE 1920

Community Area	Population (1934)	Percentage Change	Community Area	Population (1934)	Percentage Change
1. Rogers Park	58,687	+119	40. Washington Park	44,872	+ 8
2. West Ridge	42,932	+605	41. Hyde Park	43,258	+ 32
3. Uptown	122,931	+ 67	42. Woodlawn	59,969	- 4
4. Lincoln Square	45,644	+ 21	43. South Shore	76,186	+128
5. North Center	46,946	+ 22	44. Chatham	36,938	+432
6. Lakeview	112,195	+ 2	45. Avalon Park	9,803	+ 96†
7. Lincoln Park	90,319	- 4	46. South Chicago	53,498	+ 34
8. Near North Side	73,462	- 12	47. Burnside	3,383	‡
9. Edison Park	5,644	+494	48. Calumet Heights	6,965	+ 84
10. Norwood Park	15,350	+510	49. Roseland	43,416	+154
11. Jefferson Park	21,133	+290	50. Pullman	6,218	- 65
12. Forest Glen	4,549	+ 59	51. South Deering	7,777	+ 60
13. North Park	11,497	+ 24	52. East Side	15,839	+ 8
14. Albany Park	55,822	+ 36	53. West Pullman	27,380	+ 31
15. Portage Park	65,365	+239	54. Riverdale	1,298	- 61
16. Irving Park	65,963	+ 97	55. Hegewisch	6,995	+ 16
17. Dunning	21,518	+264	56. Garfield Ridge	6,098	+206§
18. Montclare	8,931	+340	57. Archer Heights	8,170	+ 53
19. Belmont Cragin	62,937	+427	58. Brighton Park	45,654	+ 36
20. Hermosa	23,605	+ 0	59. McKinley Park	20,536	- 7
21. Avondale	47,335	+ 73	60. Bridgeport	48,250	- 24
22. Logan Square	108,238	+ 32	61. New City	82,075	- 20
23. Humboldt Park	78,933	+ 12	62. West Elsdon	2,915	‖
24. West Town	171,273	- 28	63. Gage Park	30,850	‖
25. Austin	128,971	+ 77	64. Clearing	5,392	¶
26. W. Garfield Park	46,650	+ 6	65. West Lawn	9,385	+409**
27. E. Garfield Park	58,583	- 11	66. Chicago Lawn	48,128	‖
28. Near West Side	140,766	- 28	67. West Englewood	63,320	+ 21
29. North Lawndale	103,203	+ 17	68. Englewood	85,391	- 13
30. South Lawndale	75,298	- 1	69. Greater Grand Crossing	57,935	+ 38
31. Lower West Side	58,467	- 32	70. Ashburn	605	- 39
32. Loop	3,530	- 73	71. Auburn-Gresham	58,546	+332
33. Near South Side	7,844	- 55	72. Beverly	14,429	+ 55
34. Armour Square	20,629	+ 21	73. Washington Heights	19,784	+601
35. Douglas	45,947	- 26	74. Mount Greenwood	3,731	††
36. Oakland	12,679	- 23	75. Morgan Park	13,949	+134
37. Fuller Park	13,595	+ 4			
38. Grand Boulevard	88,741	+ 21			
39. Kenwood	24,324	- 21	Total	3,258,534	+ 21

* See Fig. 7 for boundaries of these areas. Source: *Census Data of the City of Chicago, 1920, 1934* (Chicago: University of Chicago Press).

† Includes area 47.

‡ Included in area 45.

§ Includes area 64.

‖ Included in area 66.

¶ Included in area 56.

** Includes areas 62 and 63.

†† Not included in Chicago city limits in 1920.

consumers.[38] However, when the community areas are separately considered, wide differences in numbers are apparent, due in

[38] The population of these areas was as follows: northwest, 830,124; northeast, 767,919; southwest, 804,236; and southeast, 715,489. The area in which the market is located, the Near West Side, contained 140,766 persons.

part to variations in the geographical size of each. The extremes of population ranged from 605 to 171,273 persons per area. Of the seventy-five areas, twenty-seven had populations greater than 50,000 persons, while an additional twelve had populations between 40,000 and 50,000. These more heavily populated areas are located in different parts of the city and at varying distances from the market. From their distribution it can be seen that there is no one market location from which they could be reached without disturbing contact with the remaining areas.[39]

With respect to reaching purchasers located in suburbs, a similar situation is created. Owing to the lack of symmetry in the shape of the metropolitan area and the population distribution therein, the market is most advantageously located with respect to the western suburbs. When the populations of all urban centers having 2,500 or more persons and located within a forty-mile radius of Chicago are grouped, the following results are obtained: north, 181,363; northwest, 86,303; west, 435,534; southwest, 57,271; south, 72,215; and southeast, 277,172.

But the present distribution of population does not alone test the adequacy of the market location. One must take account of the future regional trends of population growth. Those areas farthest from the market have been generally expanding at a more rapid rate than the near-by community areas (see Table 12). The pattern of expansion, moreover, illustrates perfectly the theory that, as a city expands, its population tends to leave the areas close to the center and move toward the outskirts; this is true both within and without the city limits. The central regions thereby become stagnant and develop into the "distressed areas" characterized by dilapidated houses and persons with low incomes.

Congestion and increased commercial and industrial use of property near the urban center furnish the propelling forces for this centrifugal movement. Improved street systems, more rapid local transportation service, and the use of the passenger automobile hold the expanding population on the city's rim to the

[39] The market is best located, of course, to reach the adjoining areas, Nos. 8, 24, 27, 29, 31, 32, and 33.

dead center of the wholesale market. How long this process may continue without a resulting decentralization of the wholesale marketing process is entirely problematical. It seems clear, however, that the transportation cost of servicing a widely scattered population from a single point will be much greater than when the population was resident in a more compact area. The trend of regional growth of population being what it is, one may expect the marketing cost of fruits and vegetables to increase rather than diminish so long as distribution continues to take place from a single large wholesale market.

In Chicago seventeen community areas have had an expansion of population exceeding 100 per cent of their respective 1920 totals.[40] With the exception of areas Nos. 43 and 44, all are located on the extreme outskirts of the city in various directions from the South Water Market (see Fig. 5). Other areas have had larger absolute increases in population, although the relative rate of expansion has not been so great.[41] As compared with the city as a whole, the expansion in the suburbs has been much greater, amounting to 80 per cent since 1920 as against 21 per cent for the city proper.

Six of the areas with significant numbers of people have experienced declining rates of population increase exceeding 20 per cent since 1920.[42] Three of these areas (Nos. 24, 28, and 31) are immediately north and south of the South Water Market. The remaining areas are located farther to the south.

This expansion of population at the periphery has had a twofold effect on the market: (1) it has lengthened the average haul to purchasers and, from the retailer's viewpoint, the distance to the wholesale market and (2) the depopulation of the distressed areas immediately adjacent to the market (with the exception of the Loop) has reduced the demand near at hand for fruits and vegetables. On the other hand, the great expansion of population

[40] Community areas Nos. 1, 2, 9, 10, 11, 15, 17, 18, 19, 43, 44, 49, 56, 65, 71, 73, and 75.

[41] Areas No. 3, 14, 16, 21, 22, 25, 41, 46, 58, and 59.

[42] Community areas Nos. 24, 28, 31, 35, 60, and 61.

at the periphery has meant that the outlying areas are now able to attract direct shipments of homegrown produce.[43] In a few cases, such as Gary, Indiana, the urban market is large enough to support occasional straight and mixed carlot receipts of fruits and vegetables from distant sources of supply as well as truckloads of home-grown produce.

[43] It should be noticed, also, that the larger plots of grounds for homes in the suburbs permit the dwellers to operate small truck gardens in many instances and to thus obtain some of their perishable-food requirements. This is particularly true of those suburbs having populations of less than 2,500.

[*To be continued*]

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Volume XII OCTOBER 1939 Number 4

This issue consists of two parts. Part I

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William L. Grossman

Supermarket and Chain-Store Food Prices
Charles W. Phillips

Active, Low-priced Common Stocks versus the Dow-Jones Industrials
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(*For full Contents see inside page*)

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